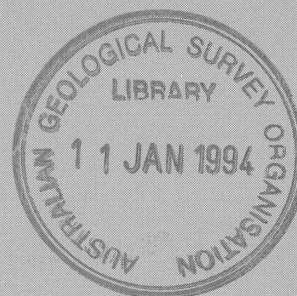


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SE QUEENSLAND SEISMIC SURVEY 1986: OPERATIONAL REPORT



by
K D Wake-Dyster and T J Barton

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**S.E. QUEENSLAND
SEISMIC SURVEY 1986:
OPERATIONAL REPORT**

by

K.D. WAKE-DYSTER¹ and T.J. BARTON¹

¹Onshore Sedimentary & Petroleum Geology Program
Australian Geological Survey Organisation, GPO Box 378, Canberra, ACT 2601,
Australia.

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DEPARTMENT OF PRIMARY INDUSTRIES AND ENERGY

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Secretary: Greg Taylor

AUSTRALIAN GEOLOGICAL SURVEY ORGANISATION

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EXECUTIVE SUMMARY

The Explosion Seismology Section, Division of Geophysics, Bureau of Mineral Resources, Geology & Geophysics (now Australian Geological Survey Organisation (AGSO)) conducted a seismic reflection, seismic crustal refraction and gravity survey in southeastern Queensland from August to November 1986.

The primary objective of the survey was to complete seismic reflection coverage in the Dalby-Toowoomba area between Traverse 14 and Traverse 16 recorded during the BMR S.E. Queensland seismic survey in 1984. Secondary objectives, subject to survey progress included recording additional seismic reflection data east of Traverse 16 (1984) over the Beenleigh Block south of Brisbane, and a 100 km of seismic reflection data south of Mitchell over a deep crustal seismic reflection feature delineated on Traverse 14 (1984) centred at SP4030. Overall the survey objectives would allow the completion of a continuous deep crustal seismic reflection profile of 1110 km length across southern Queensland, the basis of a lithospheric transect study in the southern region of Queensland.

The survey obtained a total of 181 km of 6-16 fold CMP seismic reflection data in the Beenleigh, Darling Downs and Mitchell areas, using the Sercel SN368 seismic acquisition system. Both the primary and secondary objectives were achieved, although equipment failures were a major problem in causing decreased production rates. Gravity observations were made at 360m intervals along all traverses.

The record presents operational information on the seismic reflection survey and preliminary sections of seismic traverses.

INTRODUCTION

1.1 Background:

The data processing of seismic reflection data from the 1984 S.E. Queensland seismic survey (Wake-Dyster & Johnstone, 1985) delineated several areas showing prominent mid-crustal reflection events. Also from the 1984 work, a data gap existed in the seismic coverage in the region of the Darling Downs between Traverses 14 and 16. Using these two factors a seismic survey was proposed to enable the data gap to be filled, and additional seismic survey work in the Beenleigh and Mitchell areas to follow-up mid-crustal reflection events recorded in those regions. The survey work also provided the opportunity to further utilise the Sercel SN368 seismic acquisition system prior to the equipment warranty expiring.

1.2 Location:

The survey operated in Southern Queensland in three separate areas, being the Beenleigh area, Darling Downs, and Mitchell-Roma area. The seismic traverses were confined to the following 1:250000 map sheets; BRISBANE, IPSWICH, DALBY, MITCHELL and HOMEBOIN. Topographic, cadastral and air photos were used to position the traverses. Figures 1, 2 and 3 outline the location of the seismic traverses.

1.3 Traverses:

Six seismic traverses were recorded during the survey. Traverse 1(1986) and Traverse 2(1986) both of 4 km length orientated W-E were recorded along the sides of roads in the Beenleigh area. Traverse 1(1986) followed a section of the Stapylton-Jacobs Well Road and Traverse 2(1986) followed along the Yawalpa Road east of Pimpama.

In the Darling Downs region, two traverses were recorded; Traverse 15 was orientated N-S intersecting Traverse 14(1984) on the northern end, and Traverse 17 orientated W-E, intersecting the southern end of Traverse 15 and joining Traverse 16(1984) towards the east.

Further west in the Mitchell-Roma area, Traverse 19 orientated W-E was recorded parallel and south of Traverse 14(1984), with Traverse 18 being a N-S tie line between Traverse 14(1984) and Traverse 19 and extended further north of Traverse 14(1984), to provide additional seismic data coverage.

Operational statistics for the survey are listed in Appendix 1 and traverse recording spread parameters in Appendix 5.

1.4 Operations: Commencement, Personnel and Vehicles

Shothole drilling commenced in early September with recording commencing one week later to provide a lead time for shothole drilling. A base camp for both drilling and recording crews was initially located 1.5 km east of Mt. Tyson (40 km west of Toowoomba) on private property owned by W.R. Chandler of "Glenmore". The campsite proved ideal with a 40 km bitumen road access to Toowoomba for supplies, and water obtained from the Shire council at Pittsworth, 20 km to the south. Initially, shothole drilling was commenced simultaneously on Traverse 15, and Traverse 1(1986) and 2(1986) further east at Beenleigh. One drilling rig was used for drilling shotholes on Traverses 1(1986) and 2(1986) with commercial accommodation at the Coomera Motor Inn. The recording crew also used the same

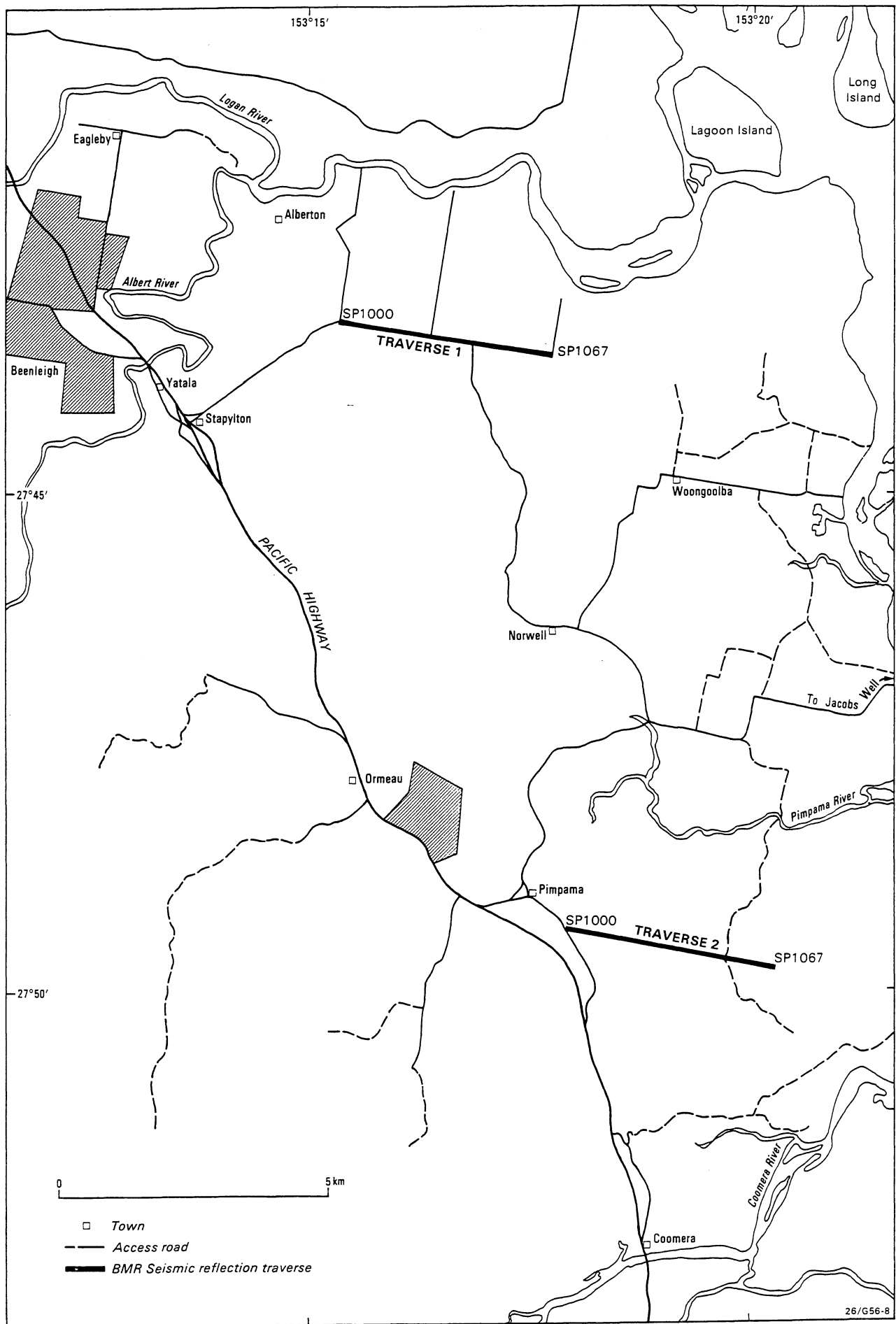


Figure 1. Seismic traverse location map, Beenleigh Area.

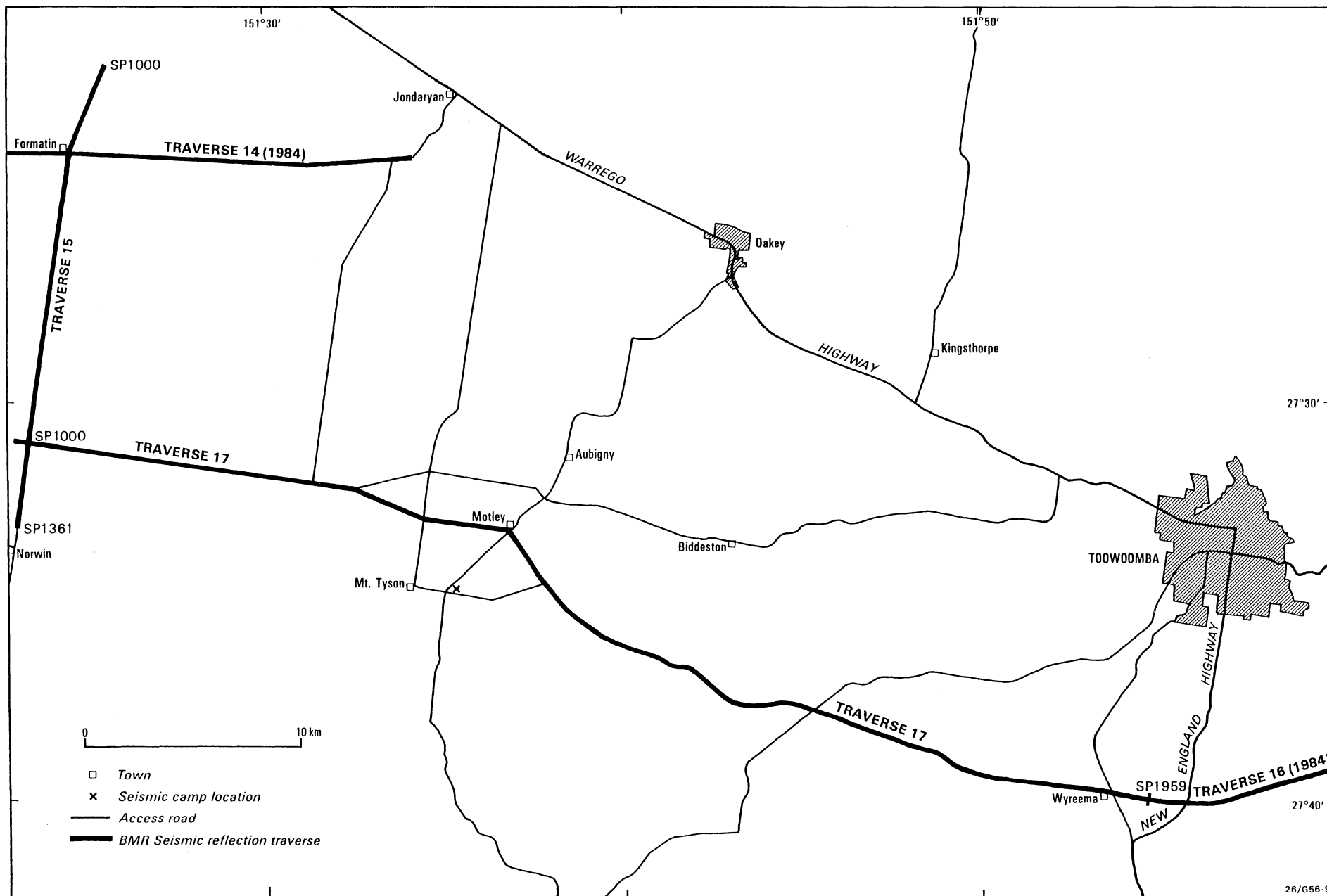


Figure 2. Seismic traverse location map, Darling Downs Area.

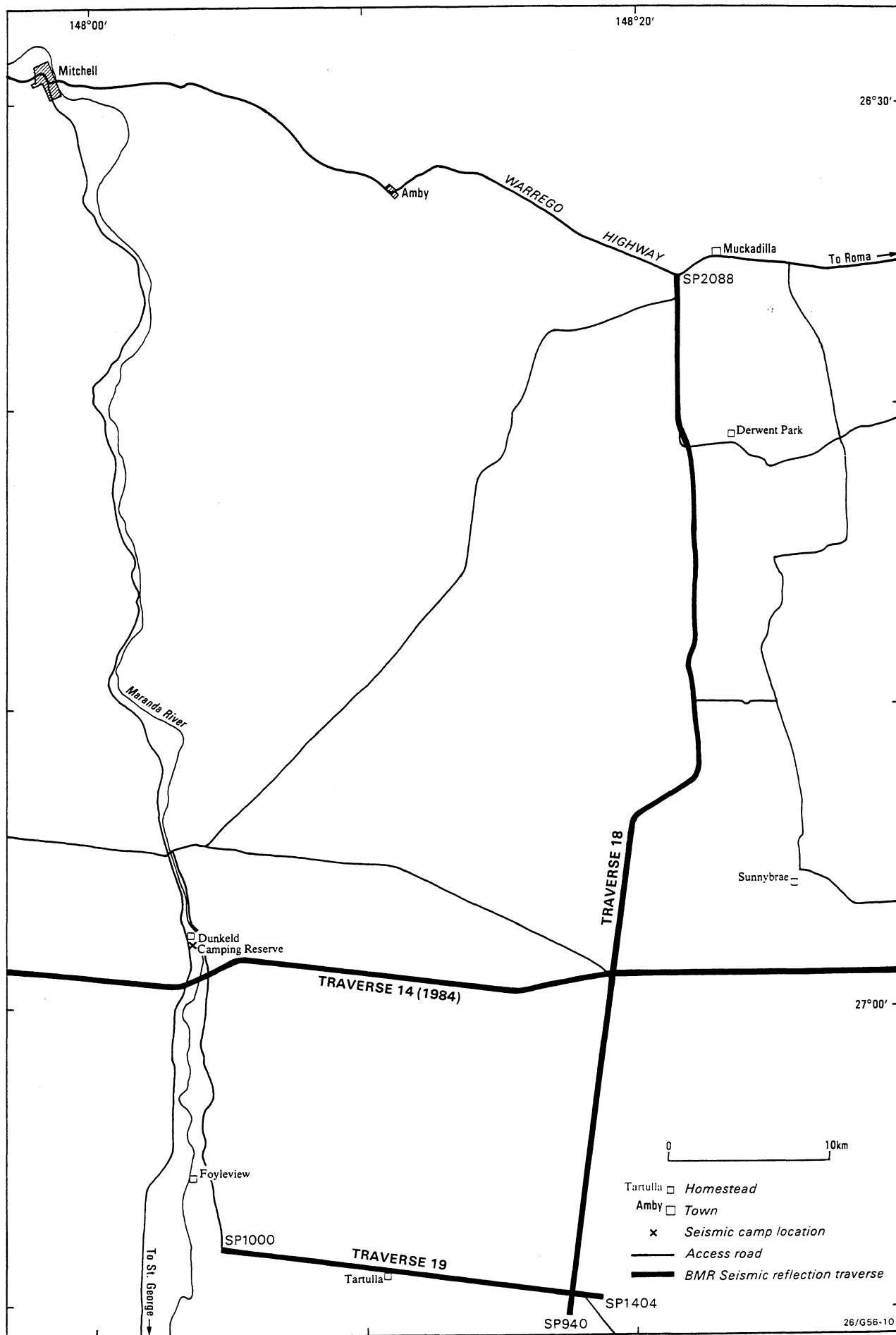


Figure 3. Seismic traverse location map, Mitchell-Roma Area.

commercial accommodation for recording Traverses 1(1986) and 2(1986). On completion of Traverses 1(1986), 2(1986), 15 and 17, a campsite was located at the Dunkeld camping reserve, 55 km south of Mitchell to allow drilling and recording of Traverses 18 and 19 in the Mitchell-Roma area. The campsite provided ready access to sealed roads, in case of heavy rains, good quality on-site bore water and reasonable access to Roma for supplies, although 155 km distance away along sealed roads.

The acquisition of the seismic reflection data required four phases of operation, including traverse clearing, surveying, shothole drilling and recording. All four phases operated from separate camps although the drilling and recording camps were located in close proximity of each other. The drilling and explosives preloading party consisted of 15 people, recording party contained 17 people, surveying team a total of 4 people, and one local bulldozer operator. Details of the personnel involved in the seismic survey are documented in Appendix 2. Thirty vehicles and fourteen trailers were required for the drilling and recording parties, with a list given in Appendix 3. Vehicles for the surveying party were supplied by the Australian Survey Office, and the bulldozer contractor supplied a support vehicle for the bulldozer.

1.5 Associated Geophysical Surveys:

Two seismic refraction profiles, each of approximately 200 km length were recorded over Traverses 14(1984) and Traverse 18 in the Mitchell-Roma area. Operational details of the crustal refraction survey (Bracewell & Finlayson, 1987) provide information on the integrated approach of using reflection and crustal refraction methods to investigate mid-crustal reflection events as shown by the BMR 1984 deep seismic reflection data along Traverse 14(1984).

Gravity measurements were made along all recorded seismic reflection traverses, and aeromagnetic coverage along Traverses 15 and 17 from 1984 work, can now be combined with the gravity and seismic reflection data.

1.6 Objectives and Program:

The seismic reflection survey was located in three separate areas in southern Queensland as the result of the survey objectives.

The primary objective of the survey was to complete the seismic coverage in the Darling Downs region between Traverses 14 and 16 recorded during 1984. The recording of seismic data between Traverses 14 and 16 (1984) would complete the continuous deep seismic reflection profile of 1110 km length from Mt.Howitt petroleum exploration well in western Queensland to Beenleigh, south of Brisbane. The purpose of recording the continuous seismic reflection profile using deep crustal seismic reflection data acquisition techniques was to provide the basis of a lithospheric transect study across Queensland.

The secondary survey objectives relate to follow-up investigations into mid-crustal seismic events delineated by the 1984 deep seismic reflection data. Seismic events were recorded on the eastern end of Traverse 16 (1984) in the region of the Beenleigh Block, and two short follow-up traverses were proposed to investigate the possibility of the mid-crustal seismic events occurring further east near the coast. An interpretation of the nature of the deep seismic reflection events occurring beneath the Beenleigh Block is documented by Korsch & others (1986). Similarly, a strong mid-crustal seismic event at 4.5 seconds two way travel time (TWT) was recorded in the Mitchell-Roma area, centred on SP4033 on Traverse 14 (1984). To further investigate the mid-crustal seismic event, the acquisition of an additional 100 km of seismic reflection data was proposed to examine the nature of the deep seismic event normal to Traverse 14 (1984). The secondary survey objectives of recording the proposed traverses were subject to the progress of the primary objective, which in turn was dependent on prevailing weather conditions and equipment reliability.

FIELD OPERATIONS

2.1 General:

Six 6-16 fold CMP seismic reflection traverses were recorded with a total length of 181 km of new seismic reflection data acquired. Traverses 1 (1986) and 2 (1986) in the Beenleigh area were recorded first to allow the shothole drilling on Traverses 15 and 17 in the Darling Downs area (primary objective) to advance ahead of the recording crew. Traverses 15 and 17 were recorded next. With survey time remaining, Traverses 18 and 19 were recorded in the other secondary objective locality. General spread and recording parameters for all seismic traverses are given in Appendix 4.

Shothole drilling progress was excellent, allowing the drilling crew to return to Canberra several weeks ahead of schedule. The recording progress however was poor to average, due mainly to continual malfunctioning of the new Sercel SN368 seismic data acquisition system. Delays due to rain and boggy traverse conditions were minor compared to recorder equipment problems. The early return of the drilling crew to Canberra enabled the recording crew to remain in the field several weeks more, to allow the recording of all pre-loaded shotholes.

Access to seismic traverses was good, as nearly all traverses except Traverse 18 followed gravel or bitumen roads. Towards the end of the survey, long travelling times to and from the seismic traverse were experienced to avoid an additional campshift which would have consumed more survey time. Major problems that occurred during the survey were related either to wet weather or equipment faults with the Sercel SN368 seismic data acquisition system. The equipment faults in Sercel SN368 were the main cause of the slow progress of the recording crew.

2.2 Reconnaissance:

A brief reconnaissance of all proposed locations for acquiring additional seismic reflection data for the survey was made by F.J. Taylor and M.J. Sexton in May and June 1986 during and following the Millmerran Sercel SN368 Test Survey.

In the Beenleigh Block area east of the Pacific Highway, several roads were examined as possible routes for seismic traverses. Positioning of the traverses was controlled by hindering problems such as sugar cane fields, swamps and underground public utility services. From the reconnaissance, two traverses each of 4 km length were proposed. Due to large high tension powerlines along the proposed northern traverse, this traverse was relocated at the last minute to a road 1 km further south (Stapylton-Jacobs Well Road).

In the Darling Downs area, little reconnaissance was required as the proposed traverses were preliminary surveyed by surveyors in 1984. Several landowners in the vicinity of Mt. Tyson were approached on the possibility of allowing the seismic survey camp to be located in wooded areas on their properties. From this landowner contact, approval was given to locate the campsite on "Glenmore" property owned by W.R. Chandler, with the campsite located 1.5 km east of Mt. Tyson.

Only a brief reconnaissance was made of the proposed traverses in the Mitchell-Roma area. For a continuous north-south traverse crossing Traverse 14 (1984) no suitable roads were available, however by using a small amount of bulldozing of scrub and clearing fence lines, a traverse could be made which connected together portions of shire roads in the area. Contact

with landowners in the Mitchell-Roma area was made by K.D. Wake-Dyster during the survey whilst drilling and recording were in progress in the Darling Downs area.

2.3 Bulldozing:

No bulldozing was required in the Beenleigh and Darling Downs areas for clearing of the seismic traverses. However a bulldozer was required in the Mitchell-Roma area to clear 1.8 km of seismic traverse on the eastern end of Traverse 19 and 43 km on the southern half of Traverse 18. Due to the small amount of clearing, three quotes were obtained from local operators for a D6 bulldozer fitted with a hydraulic angle blade, rippers and tree pusher. On the 17-9-86 a D6C with the required specifications was hired from Lussvale Pastoral Company, of "Foyleview" via Mitchell at the rate of \$58 per hr with BMR supplying fuel and lubricants. The bulldozer cleared 20 km of fence line and 25 km of thick to light scrub before being de-hired on 8-10-86 and working a total of 93 hours. The bulldozer was floated by low-loader back to "Foyleview" at a cost of \$412.50 on completion of the seismic traverse clearing. From the above statistics, seismic traverse clearing cost approximately \$120 per km (excluding fuel and lubricant costs) and operated at clearing rate of 0.5 km per hr.

On completion of the survey a grader was hired for 16 hours at \$46 per hr (inc. fuel) from the Warroo Shire to remove drill cuttings from the shire road which Traverse 19 followed.

2.4 Surveying:

Surveying requirements were provided by the Brisbane Regional Office of the Australian Survey Office (ASO). A four person surveying team was used on the survey to provide pegging at 60 m intervals, elevations at geophone stations and coordinates of bend points in the seismic traverses. The surveying team also assisted in guiding the bulldozer and supervising clearing operations.

A Magnavox satellite positioning system was also used by the ASO to satellite fix the geophone station at SP1000 on Traverse 19. Elevations of geophone stations referenced to the Australian Height Datum (AHD) and Australian Map Grid (AMG) coordinates for seismic traverse bendpoints are listed in Appendix 7.

2.5 Drilling and Explosives:

Four Mayhew drilling rigs from BMR were used for shothole drilling on the survey. From previous seismic surveys a 40 m shothole depth was chosen to position the explosive charge below the weathered layer. In the Mitchell-Roma area the majority of shotholes were drilled to 40 m, however due to either penetrating sands, basalts or metamorphics in the Beenleigh and Darling Downs areas, shotholes only averaged depths from 20 m to 30 m. The main explosive type used was ICI 'Anzite Blue' in 4.1 kg 'Geolok' containers. A small amount (150 kg) of Dupont 'Tovex' SDX was used on the Beenleigh traverses and 45 m lead Dupont electrical detonators were used on all shotfiring.

2.51 Drilling:

Shothole drilling progress was excellent, averaged over the whole survey. Delays in progress were caused by wet weather conditions making traverse conditions impassable for several days. In the Beenleigh area on Traverses 1 (1986) and 2 (1986) drilling was initially very slow in hard metamorphics of the Beenleigh Block. Due to the hard drilling, tungsten carbide toothed roller bits were used. On the eastern end of Traverse 1 (1986) drilling changed to peat swamp clays and sands, also causing shotholes to be shallower than 40 m.

In the Darling Downs area shothole drilling on Traverse 15 penetrated mainly clays, gravels and sands in the floodplain region of the Condamine River. Shothole depths averaged 23 m due to the drilling problems of sloughing sands. Along Traverse 17 similar shothole depths as Traverse 15 were made, however on the eastern half of the traverse shallow shothole depths were caused by basalts which became more predominant towards the Great Dividing Range south of Toowoomba.

In the Mitchell-Roma area drilling conditions were very good. The first two shotholes on Traverse 19 required mudpits due to the sand banks near the Maranoa River, with the majority of the remainder of shotholes on Traverses 19 and 18 drilled to 40 m depth through sandstone, siltstone and mudstone.

2.52 Explosives:

During the course of the survey 5725 kg of explosive (5575 kg 'Anzite Blue' and 150 kg 'Tovex'SDX) and 580 detonators were used in the seismic reflection survey. In addition 4400 kg 'Anzite Blue' and 68 detonators were used on the crustal refraction survey experiment. Explosives used on the survey were drawn from stocks held at the Queensland State Government magazine near Helidon.

The procedure of silastic sealing and taping detonators into the explosive charge continued in order to minimise misfires. Misfires were not a problem until the northern portion of Traverse 18 in the Mitchell-Roma area where 33 shots misfired out of 143 recording shots. The cause of the large percentage of misfires could not positively be ascertained. Two possible causes for the misfires are; 1) a batch of faulty detonators were used, or 2) the local area contained highly saline shallow groundwater, and as the explosives had been pre-loaded up to a month before recording, hydrostatic water pressure could have invaded the explosive and either dissolved the explosive or corroded the detonators, causing the misfires.

2.6 Seismic Recording:

Seismic reflection recording techniques for the survey were the same as those used on the Sercel SN368 Equipment Tests Survey at Millmerran during May and June 1986 (Johnstone & others, 1986), except the record lengths were of 20 seconds duration. No further noise analysis experiments or uphole shoots were made on the survey. Acquisition parameters used for recording are detailed in Appendix 4 with traverse spread information in Appendix 5.

Major delays to seismic reflection recording progress were caused by hardware failures in the Sercel SN368 seismic data acquisition system. Equipment faults occurred in the tape drive unit and power supply unit, with suspected intermittent faults in the master control unit (MCU). During the survey only two station units became faulty with only minor repairs

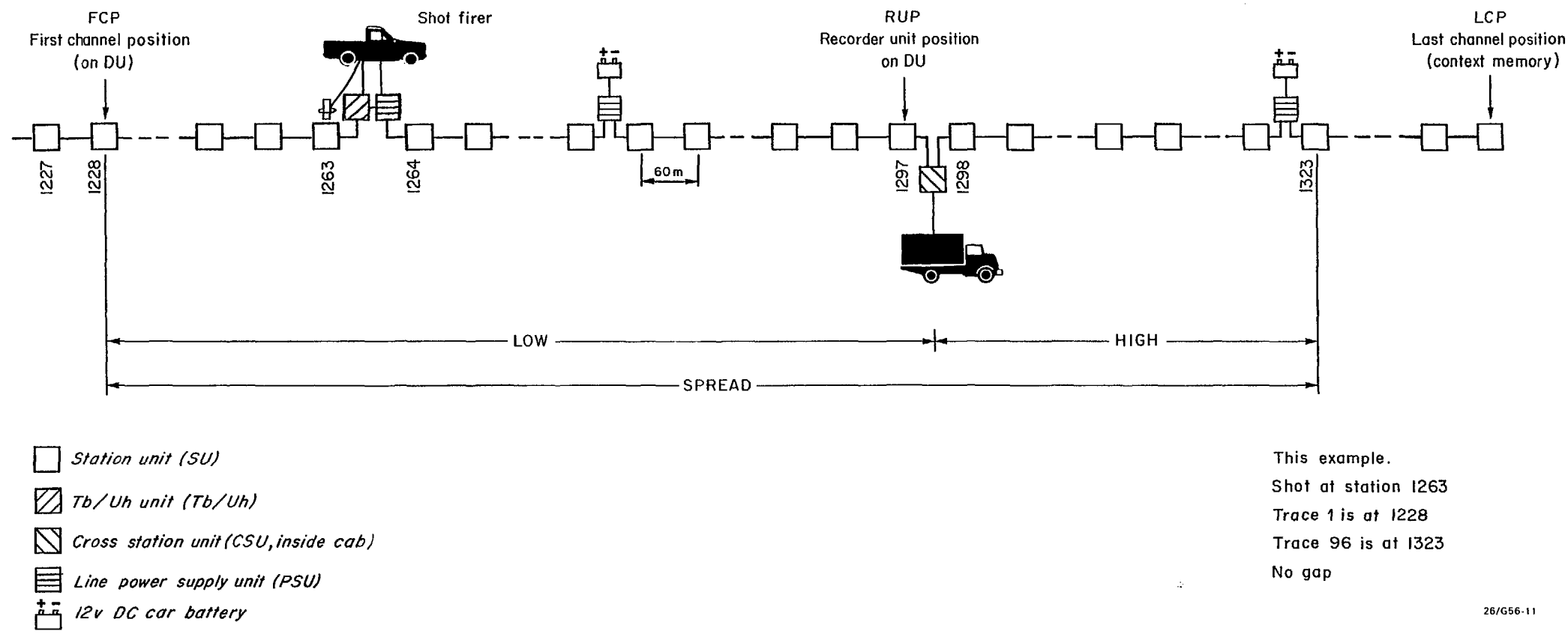


Fig.4 Typical reflection spread

required at the workshop of Seismic Supply International in Brisbane. One station unit also sustained cable plug damage after being accidentally driven on by a jug buggy. Details of recording days lost due to campshifts, wet weather and recording instrument breakdown are given in Appendix 1.

From the operational statistics, approximately a third of the total available recording days were lost due to hardware failures of the Sercel SN368 seismic acquisition system.

Appendix 8 details an equipment log of error codes generated during acquisition on numerous shots, and details the major hardware faults. In the early part of the survey, line transmission errors were a common intermittent fault. The line transmission problem was eventually solved at the end of the survey as being caused by a design fault on the Line Interface (LI) board in the MCU. An updated LI board was installed at Seismic Supply International Pty. Ltd. in Brisbane at the completion of the survey, which eliminated the line transmission error codes.

Other problems which appeared to effect the Sercel SN368 were vibration and high ambient air temperatures. At the commencement of the survey a diesel Lister 8KVA generator was mounted on the recording truck to provide 240VAC power for the recorder battery charger. The generator caused excessive vibration to the recording cab and was thought to cause circuit boards and integrated circuit components to vibrate loose, creating hardware faults. To overcome the vibration problem a petrol Honda/Powerlite 3KVA generator was hired for a month to replace the Lister generator for battery charging. Following the success of the hired generator a petrol Honda/Powerlite 5KVA generator with an electric start was purchased with low vibration characteristics and remained in service for the remainder of the survey. Towards the end of the survey, operating temperatures in the recording cab reached 40 deg C by mid-afternoon, and with the high ambient temperatures, recording faults appeared. Unfortunately the heat related faults could not be pinpointed as in the cool of the evening the faults would disappear. To provide some cooling, two circulating fans were purchased and run from the generator during non-recording time intervals, however they were not entirely successful. On returning to Canberra a recommendation was made that airconditioning be installed with ducting into the MCU, power supply unit and tape drive unit, to cool the instrumentation to a satisfactory operating temperature.

A modified Electrotech BC-8A blaster connected to the Sercel SN368 via the Time Break/ Uphole (TB/UH) unit was used for the majority of the survey. The Electrotech blaster was replaced by a new OYO blaster ordered before the survey and delivered towards the end of the survey.

The seismic data acquisition phase of the survey could have been regarded as being an additional Sercel SN368 test survey under true BMR seismic reflection survey conditions. Compared to the Millmerran Sercel SN368 test survey, record lengths on the survey were three times those on the test survey, which meant additional heat generated by the instrument, shorter cool down times and more power drained from the battery power source. It was proved on the survey that airconditioning of the recording equipment is essential and the possibility of having a continuously running generator with the recording cab would be highly desirable.

2.7 Gravity:

Gravity observations were made at 360 m intervals along all 1986 seismic reflection traverses. Readings were also taken at permanent markers along the traverses wherever it was found convenient to do so. Gravity ties were made to stations within the Australian National Gravity Network and to gravity stations read on seismic traverses from the 1984 BMR S.E. Queensland seismic survey. Operational details for the gravity survey are presented in Appendix 6 with reduced Bouguer gravity values listed in Appendix 9.

2.8 Data Processing:

The BMR field processing system based on a HP-1000 computer was used on the survey. The computing system was used essentially to create line files of elevations, coordinates, spread geometries, shot depths and uphole times in a format compatible with the BMR in-house VAX/DISCO seismic data processing format requirements.

The field system was not used for reading field data tapes because seismic data recording on the Sercel SN368 was made at 6250 bpi, GCR format, which was not compatible with the field system 1600 bpi tape drive unit. Seismic data field tapes and line file information were returned to Canberra as opportunities arose. A suitable demultiplexing module in DISCO software was still not available to demultiplex the field tapes from Sercel SEG-D format despite efforts within BMR to write a module to do the task.

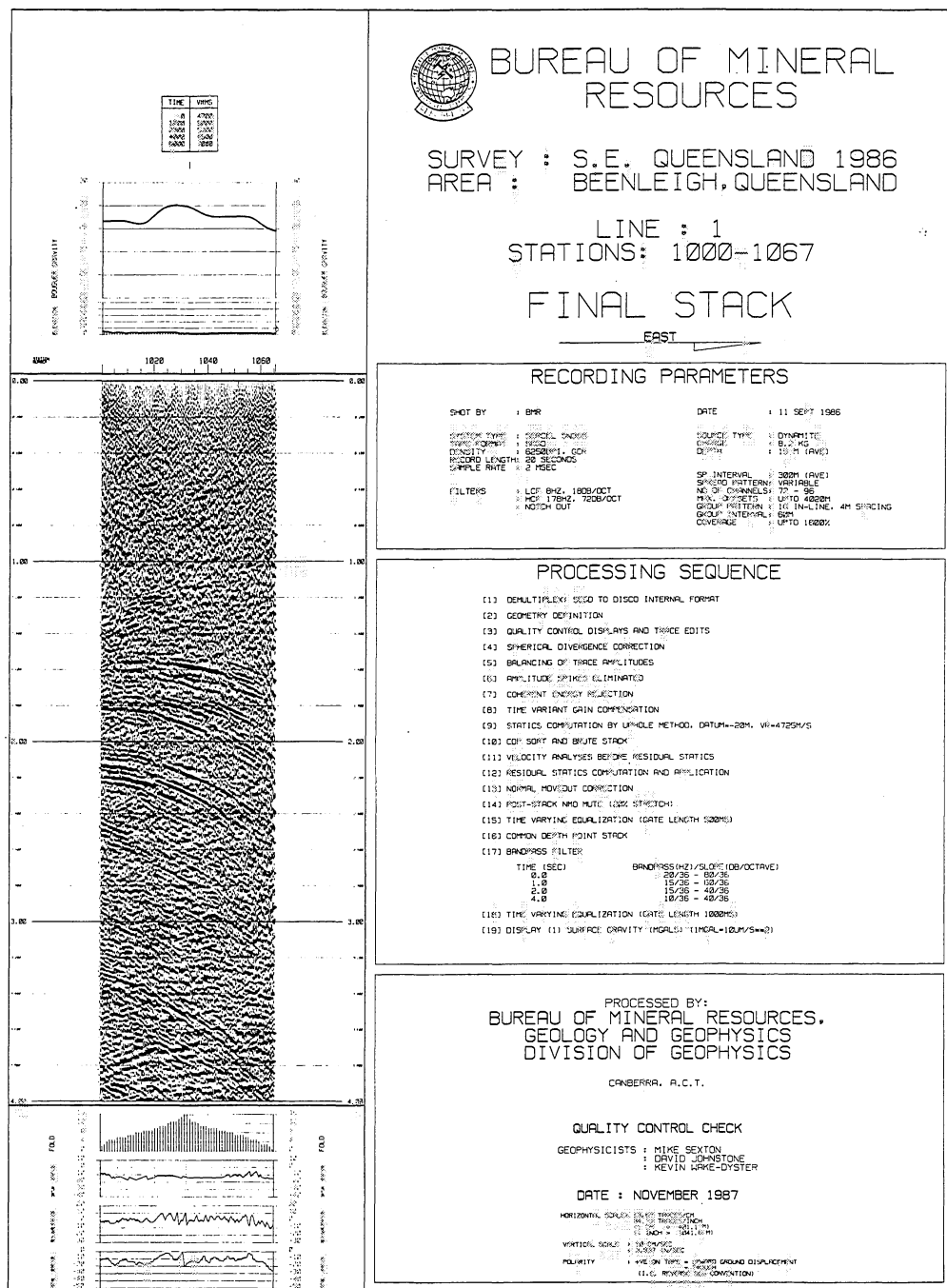
Slight modifications to the SEG-B DISCO DEMUX module by Mike Sexton eventually enabled the 6250 bpi GCR Sercel SN368 field tapes to be demultiplexed. Problems were encountered in reading field tape 86/034 on the VAX/DISCO system with no files on tape being able to be demultiplexed. In an attempt to demultiplex the tape, the tape was forwarded to GSI in Sydney for demultiplexing. GSI also found the tape unreadable, until a copy was made of the tape whereby an engineer manually boosted gains on the tape. The tape besides having low signal levels had one completely dead track. The cause was either due to a fault in the tape drive or a faulty recording tape. An investigation of available tapes, revealed that the Control Data "Storage Master-Alpha" 800/1600/6250 tapes used in recording the survey were one of the lowest quality available. On future surveys Wabash "Datatech-Mira 1000" tapes are recommended for recording seismic data as the tapes are 'total surface tested at 6250 bpi'.

Following demultiplexing of the SEG-D field tapes to DISCO internal format the processing sequence in Table 1 was used to process the data to final stack stage. Final stacks of Traverse 1(1986), 2(1986), 15, 17, 18 and 19 are shown in Figs. 5, 6, 7, 8a, 8b, 9a, 9b, 10. Full scale final stack seismic sections (Vert. Scale 10 cm/sec, Horiz. Scale 13.67 traces/cm) are available for purchase to the public through the AGSO Sales Centre, GPO Box 378, Canberra, ACT, 2601, Australia.

TABLE 1

Processing sequence for the seismic sections using the BMR Disco processing system.

1. Demultiplex field tapes.
2. Geometry definition.
3. Quality control displays and trace editing.
4. Spherical divergence correction.
5. Balancing of trace amplitudes.
6. Time variant gain compensation.
7. Statics computation by the uphole method.
8. CDP sort and brute stack.
9. Velocity analysis with statics applied.
10. Normal Moveout correction.
11. Post-Stack NMO mute (20% stretch).
12. Time varying equalisation (gate length 500ms).
13. Common Depth Point Stack.
14. Bandpass Filtering.
15. Time varying equalisation (gate length 1000ms).
16. Display section with gravity and aeromagnetic data.



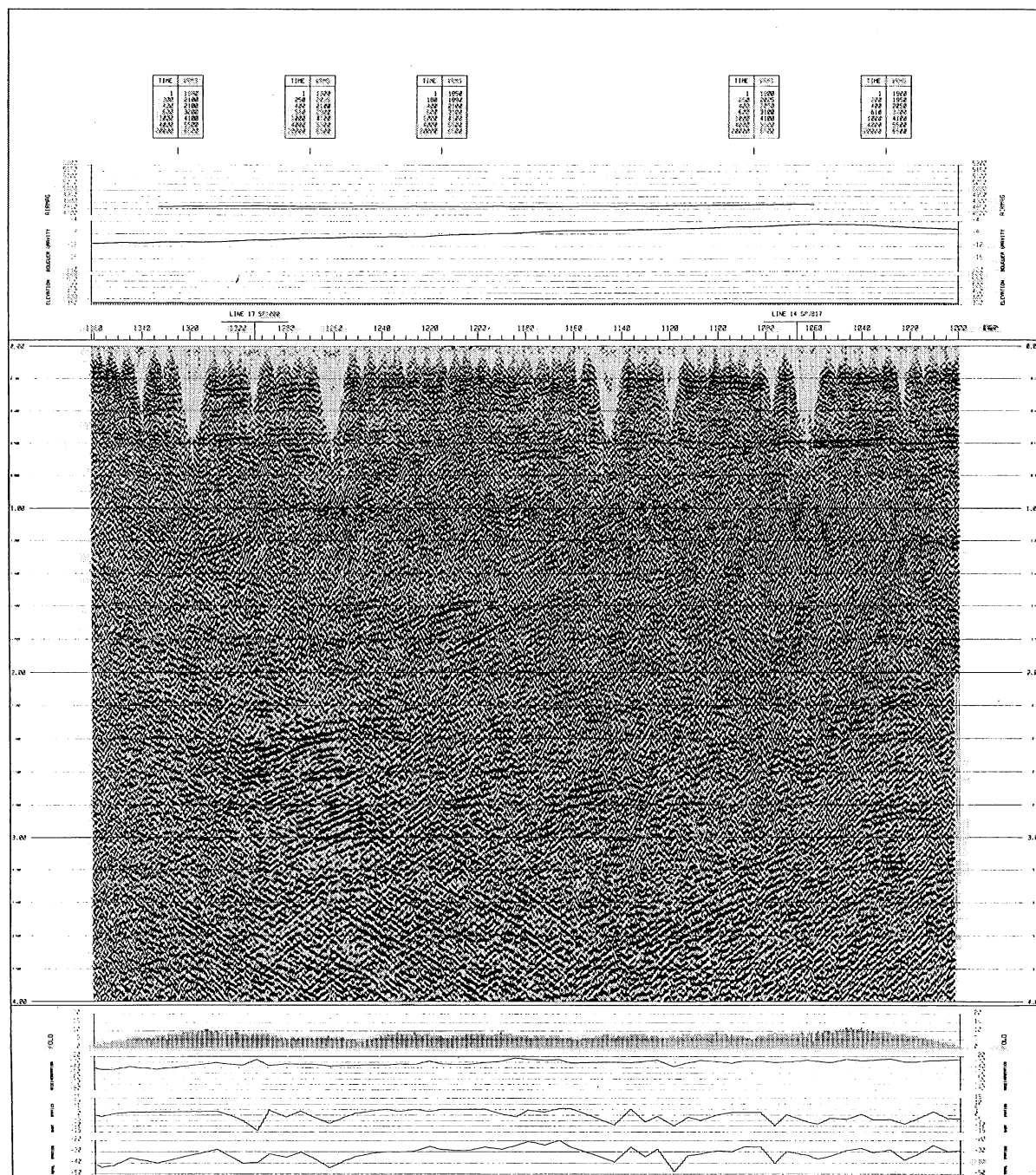
26/G56-12

Figure 5. Traverse 1 (1986) Final Stack



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Figure 7. Traverse 15 Final Stack

BUREAU OF MINERAL
RESOURCES

SURVEY : S.E. QUEENSLAND 1986
AREA : DALBY - TOOWOOMBA

LINE : 15
STATIONS: 1361-1000

FINAL STACK

NORTH

RECORDING PARAMETERS

```

SHOT BY      : CIP                                DATE      : SEPT 1986

SYSTEM TYPE   : SERIAL S2080                       SOURCE TYPE  : DYNALITE
TIME FORMAT   : SECS                               CHARGE       : 8.2 (IN)
DENSITY       : ESTIM (DPL, GCR)                   DEPTH        : 425 (IN)
RECORD LENGTH : 2 SECS                             SP INTERVAL  : 20CM
SAMPLE RATE   : 2 SECS                             NO OF CHANNELS: 72
                                                    MAX. OFFSETS : 21000 + 52000
FILTERS       : LCF OUT
                HCF 150HZ, 7200V/OCT
                NOTCH IN 50 HZ
                GROUP PATTERN: 100% LINE, 45% SPONGING
                GROUP INTERVAL: 30
                SPOONING:

```

PROCESSING SEQUENCE

- ```

(1) DENSITY:KEY= SEED TO SEGVISED INTERVAL)
(2) GEOMETRY DEFINITION
(3) QUALITY CONTROL DISPLAYS AND TRACE EDITS
(4) SPHERICAL CONVERSION CORRECTION
(5) BRACKETING OF TRACE AMPLITUDES
(6) THE VARIANT GAIN COMPOSITION
(7) STATICS COMPUTATION BY UNPOLE METHOD
DATA1 3301, VS1-1524VS
(8) COP SORT AND WRITE STACK
(9) VELOCITY ANALYSES WITH STATICS APPLIED
(10) NORMAL MOVEOUT CORRECTION
(11) POST-STACK AND MUTE LOGIC STACKING
(12) THE VARYING EQUALIZATION (GATE LENGTH 5001S)
(13) COMMON DEPTH POINT STACK
(14) BRUNNHS FILTER

 TIME (SEC) BRUNNHS(42)/S/OP/OP(100)
 0.0 27/36 - 60/36
 0.5 15/36 - 60/36
 1.0 15/36 - 42/36
 4.0 12/36 - 27/36

(15) THE VARYING EQUALIZATION (GATE LENGTH 1000VS)
(16) DISPLAY (1) SURFACE GEOMETRY (ANGLES) (LINEAL = 100VS/100)
 (2) REMOVED SURFACE (LINEAL = 100VS/100)

```

PROCESSED BY:  
BUREAU OF MINERAL RESOURCES,  
GEOLOGY AND GEOPHYSICS

DIVISION OF GEOPHYSICS  
CANBERRA, A.C.T.

QUALITY CONTROL CHECK

GEO-PHYSICISTS : MIKE SEXTON  
: DAVID JOHNSTONE  
: KEVIN WAKE-DYSTER

DATE : NOVEMBER 1987

HORIZONTAL SCALE: 13.67 TRACES/CM  
24.72 TRACES/INCH  
(1 CM = 418.1 M)  
(1 INCH = 1841.6 M)

VERTICAL SCALE: 12.0 CH/SEC  
3.937 IN/SEC

POLARITY: + VE ON TRAP = UPWARD GROUND DISPLACEMENT  
(I.E., REVERSE SEG CONVENTION)

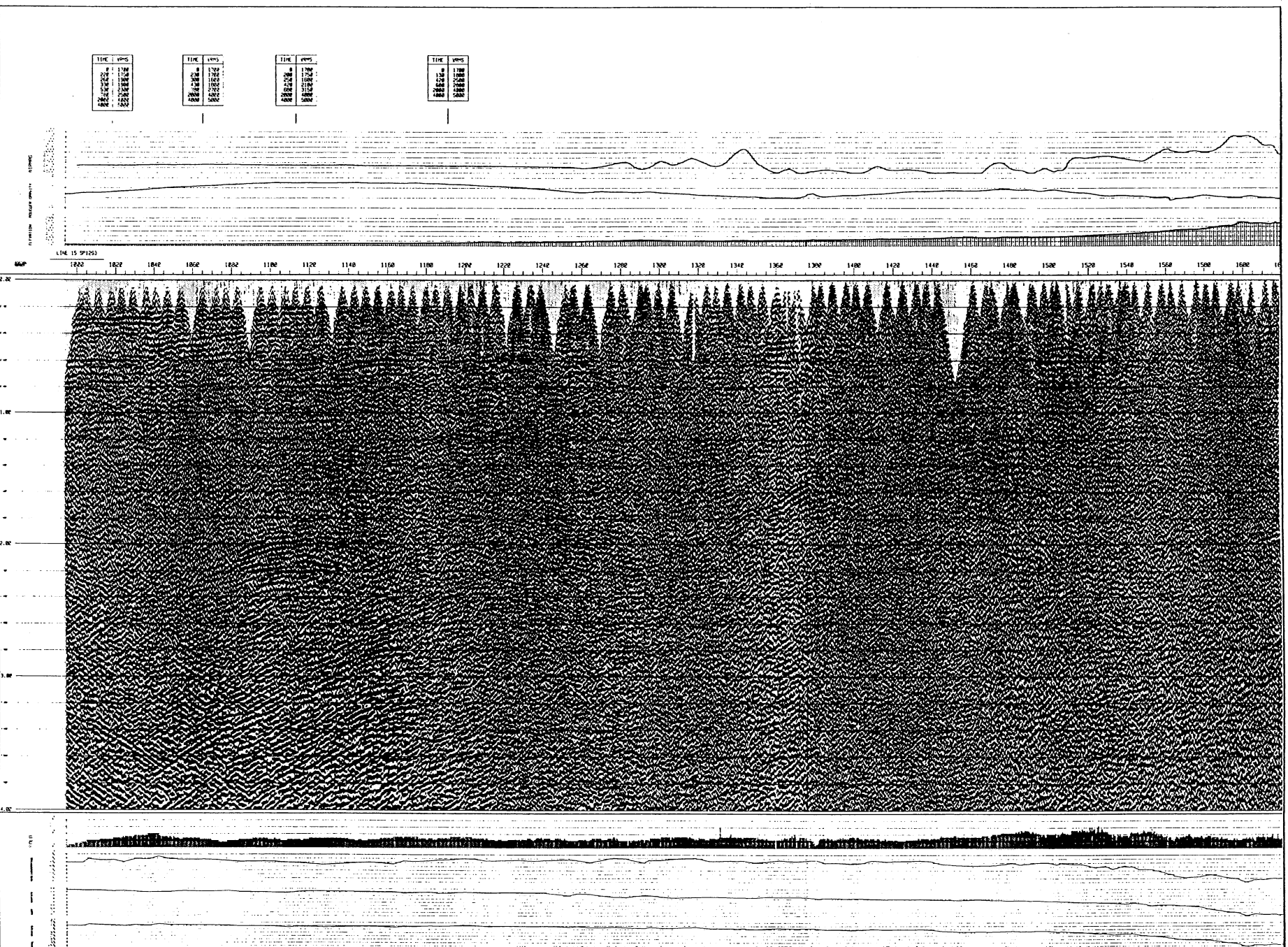
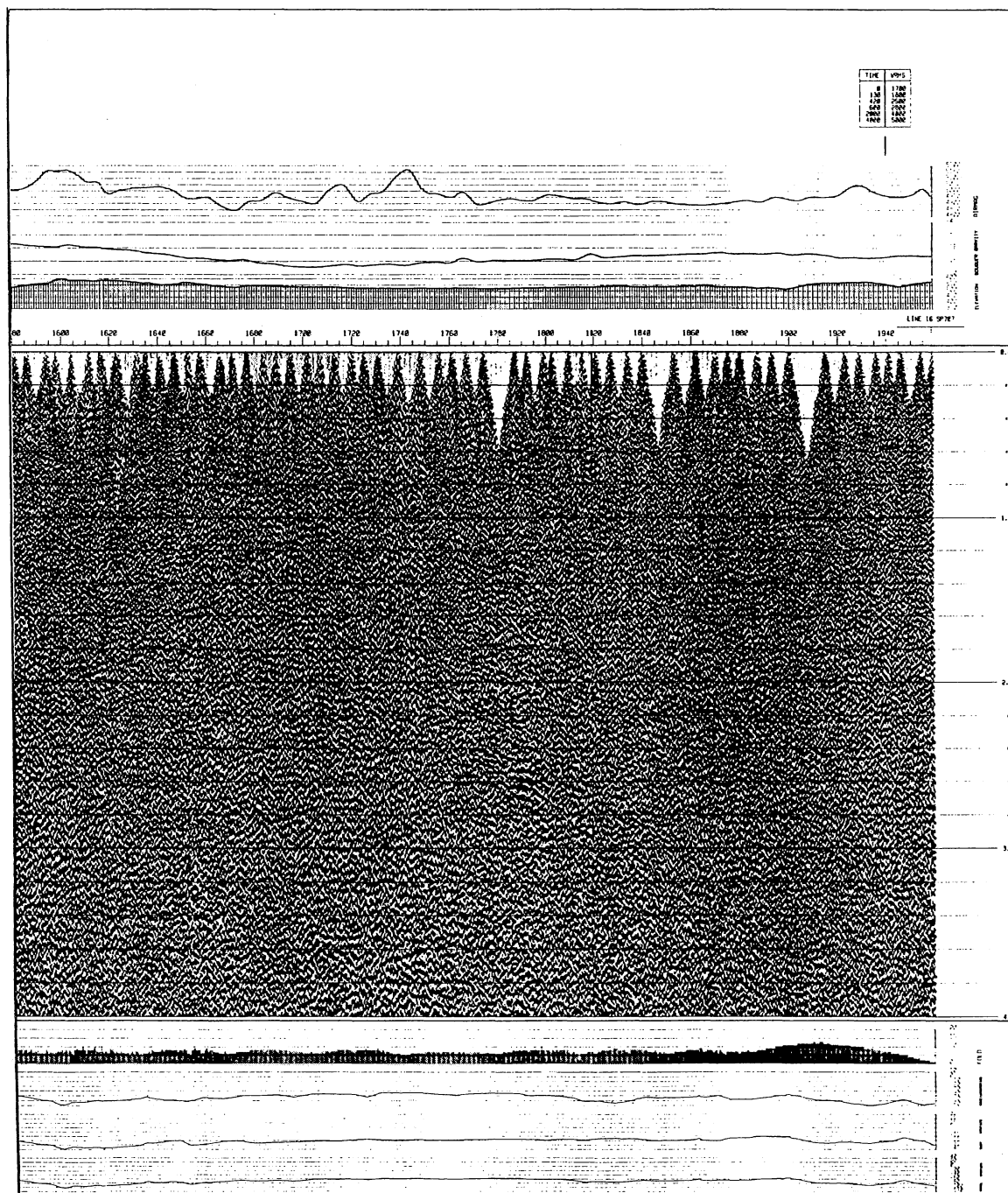


Figure 8a. Traverse 17 (SP0994-1600) Final Stack

Figure 8b. Traverse 17 (SP1600-1959) Final Stack



# BUREAU OF MINERAL RESOURCES

SURVEY : S.E. QUEENSLAND 1986  
AREA : DALBY - TOOWOOMBA

LINE : 17  
STATIONS: 994-1959

## FINAL STACK

EAST

### RECORDING PARAMETERS

SHOT BY : BMR DATE : SEP 1986  
SYSTEM TYPE : SPARC 9068 SOURCE TYPE : DYNAMITE  
TAPE FORMAT : SECO CHARGE : 0.2 KG  
DENSITY : 6500 BPL GOR DEPTH : 400 MEST, 20 M DEPT  
RECORD LENGTH : 20 SECONDS  
SAMPLE RATE : 2 HSEC  
SP INTERVAL : 360°  
SPARC PATTERN : VARIABLE  
NO. OF CHANNELS : 2  
MAX. OFFSET : 2100' - 5700'  
GROUP PATTERN : 15' IN - LINE, 4' SPACING  
GROUP INTERVAL : 60'  
COVERAGE : 100%

### PROCESSING SEQUENCE

- (1) DEMULTIPLEX SECO TO SEGY DISC INTERNAL
- (2) GEOMETRY DEFINITION
- (3) QUALITY CONTROL DISPLAYS AND TRACE EDIT
- (4) SPHERICAL DIVERGENCE CORRECTION
- (5) BALANCING OF TRACE AMPLITUDES
- (6) TIME VARIANT GAIN COMPENSATION
- (7) STATICS COMPUTATION BY UNLOCK METHOD  
DRIFT 4300' VSH-3500'S
- (8) COP SORT AND BRUTE STACK
- (9) VELOCITY ANALYSES WITH STATICS APPLIED
- (10) NORMAL MOVEOUT CORRECTION
- (11) POST-STACK AND PLT 1200' STRETCH
- (12) TIME VARYING EQUALIZATION (GATE LENGTH 500'S)
- (13) COMMON DEPTH POINT STACK
- (14) BANDPASS FILTER  
TIME (SEC) BANDPASS (H/5, 20, 100, OCTAVE)  
0.2 20/36 - 80/36  
1.0 15/36 - 60/36  
2.0 15/36 - 40/36  
4.0 12/36 - 42/36
- (15) TIME VARYING EQUALIZATION (GATE LENGTH 1000'S)
- (16) DISPLAY

PROCESSED BY:  
BUREAU OF MINERAL RESOURCES,  
GEOLOGY AND GEOPHYSICS

DIVISION OF GEOPHYSICS  
CANBERRA, A.C.T.

### QUALITY CONTROL CHECK

GEOPHYSICISTS : WAYNE SEXTON  
DAVID JOHNSTONE  
KEVIN WHELAN

DATE : NOVEMBER 1987

HORIZONTAL SCALE : 1:1000  
11 INCH = 1000 M = 412.1'

VERTICAL SCALE : 1:1000  
11 INCH = 1000 M = 412.1'

POLARITY : +VE ON TAPE = UPRATE GROUND DISPLACEMENT  
-VE ON TAPE = UPRATE GROUND DISPLACEMENT  
11.0. REVERSE SEG CONVENTION

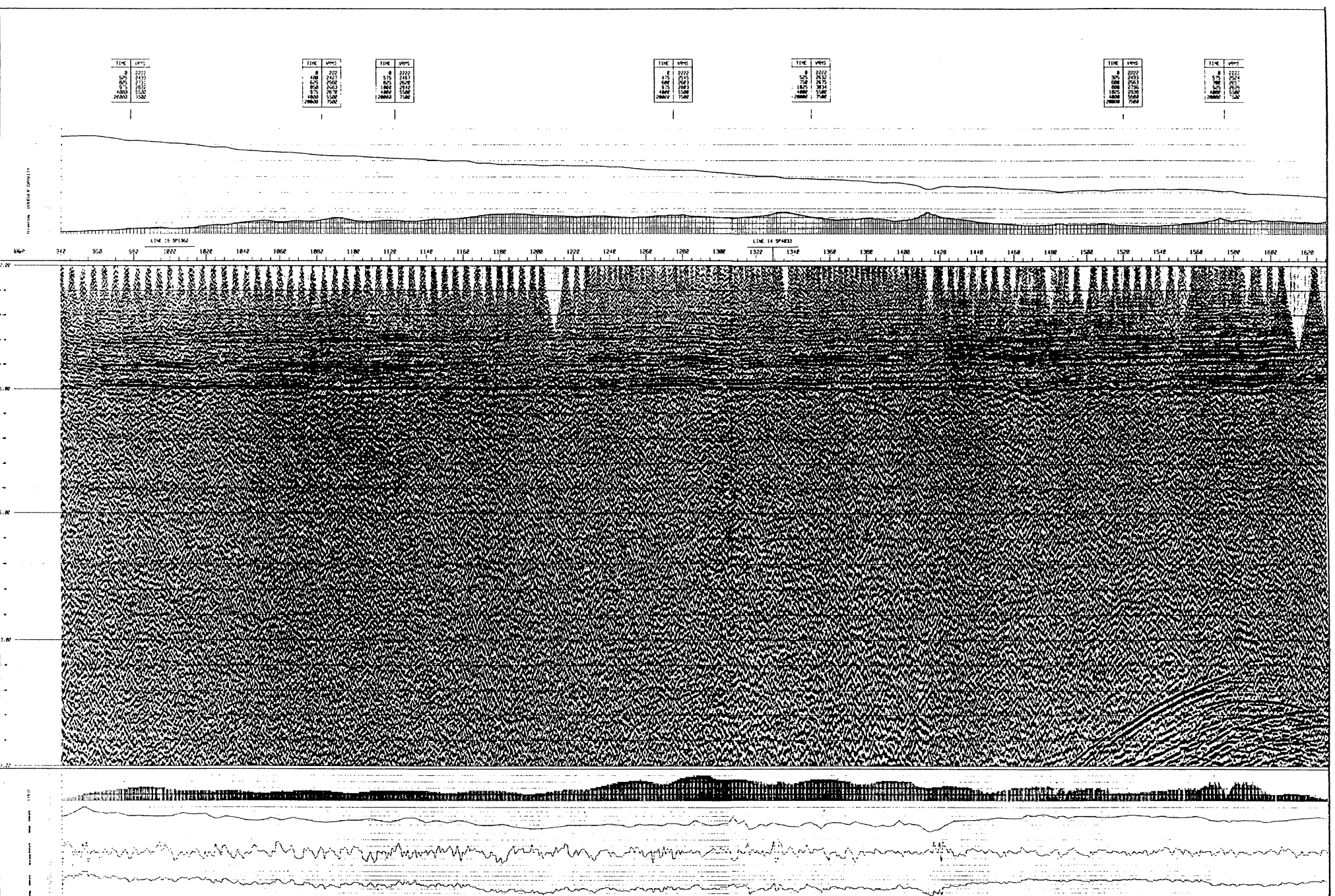


Figure 9a. Traverse 18 (SP0940-1620) Final Stack



# BUREAU OF MINERAL RESOURCES

SURVEY : S.E. QUEENSLAND 1986  
AREA : MITCHELL, QUEENSLAND

LINE : 18  
STATIONS: 940-2088

## FINAL STACK

NORTH

### RECORDING PARAMETERS

|               |                    |                 |                |
|---------------|--------------------|-----------------|----------------|
| SHOT BY       | 1 BPC              | DATE            | 1 OCT-NOV 1986 |
| SYSTEM TYPE   | 1 SEISM. SNAGS     | SOURCE TYPE     | 1 CHARGE       |
| TIME FORMAT   | 1 SE               | CHARGE DEPTH    | 1 0.0 M        |
| DENSITY       | 1 0.000            | DEPTH           | 1 0.000 M      |
| RECORD LENGTH | 1 10000            | SP. INTERVAL    | 1 500          |
| SAMPLE RATE   | 1 1000             | SPREAD PATTERN  | 1 VARIABLE     |
| FILTERS       | 1 10-100/300       | NO. OF CHANNELS | 1 12           |
|               | 1 100-1000/1000    | NO. OF STATIONS | 1 2088         |
|               | 1 1000-10000/10000 | GROUP PATTERN   | 1 10-1000/1000 |
|               |                    | GROUP INTERVAL  | 1 1000         |
|               |                    | COVERAGE        | 1 100%         |

### PROCESSING SEQUENCE

- (1) DEMULTIPLY SEG TO SEG/10000 INTERVAL
- (2) GEOMETRY DEFINITION
- (3) QUALITY CONTROL DISPLAYS AND TRACE EDITS
- (4) SPHERICAL DIVERGENCE CORRECTION
- (5) BALANCING OF TRACE AMPLITUDES
- (6) AMPLITUDE SCALES ELIMINATED
- (7) COHERENT ENERGY REJECTION
- (8) TIME VARIING GAIN CORRECTION
- (9) STATISTICS COMPUTATION BY UNIFORM METHOD
- (10) COP SORT AND BRUTE STACK
- (11) VELOCITY ANALYSES WITH STATISTICS APPLIED
- (12) RESIDUAL STATISTICS COMPUTATION
- (13) VELOCITY ANALYSES WITH RESIDUAL STATISTICS APPLIED
- (14) NORMAL MOVEMENT CORRECTION
- (15) POST-STACK AND MUTE LOGS STACK
- (16) TIME VARIING EQUALIZATION, DATE LENGTH 50000
- (17) COMMON DEPTH POINT STACK
- (18) DEPRESS FILTER
- (19) TIME VARIING EQUALIZATION, DATE LENGTH 100000
- (20) DISPLAY

PROCESSED BY:  
BUREAU OF MINERAL RESOURCES,  
GEOLOGY AND GEOPHYSICS

DIVISION OF GEOPHYSICS  
(GEOLOGY, PHYSICS)

### QUALITY CONTROL CHECK

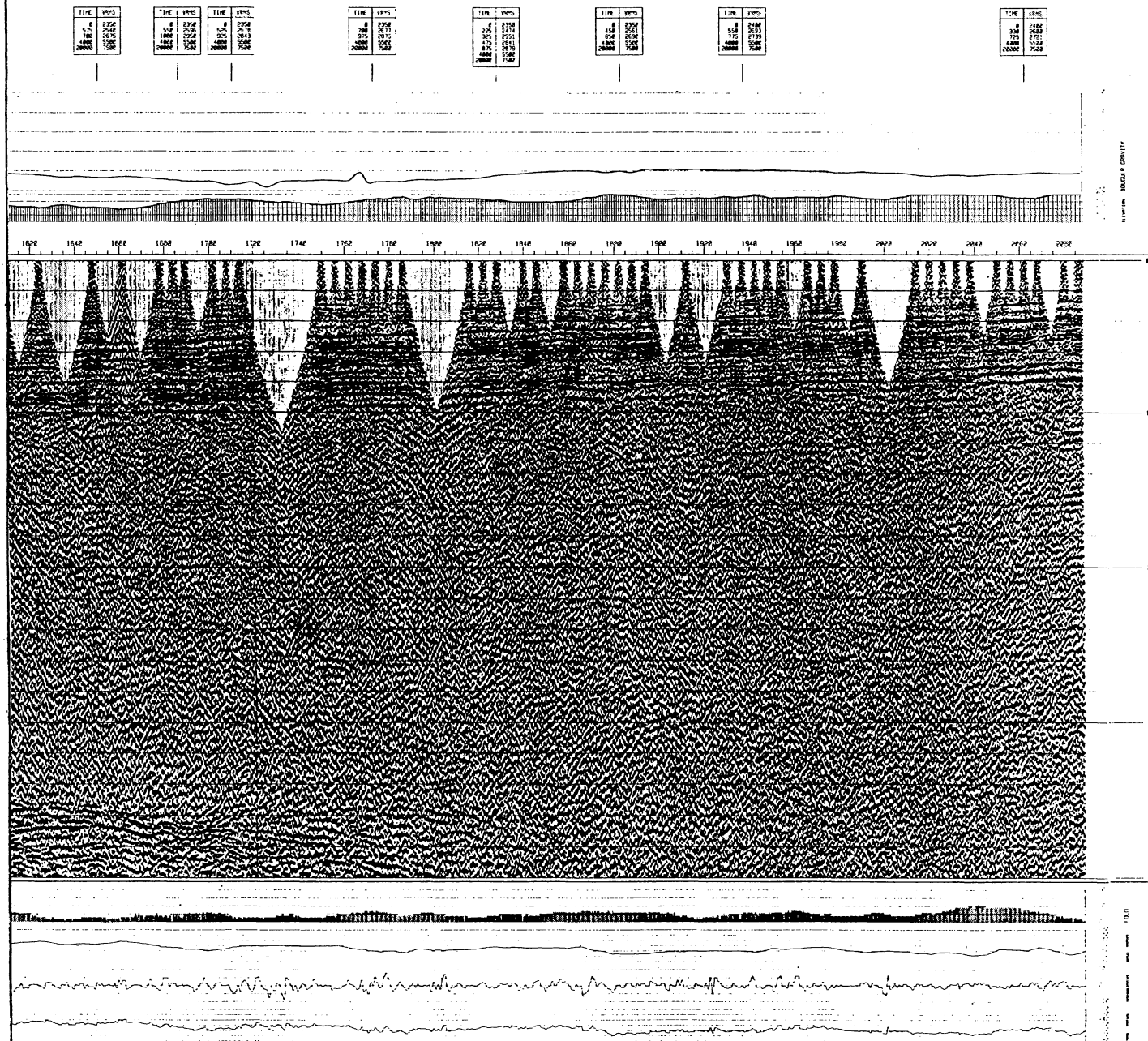
GEOPHYSICISTS : M. J. SEYTON  
D. J. JOHNSON  
M. J. JOHNSON

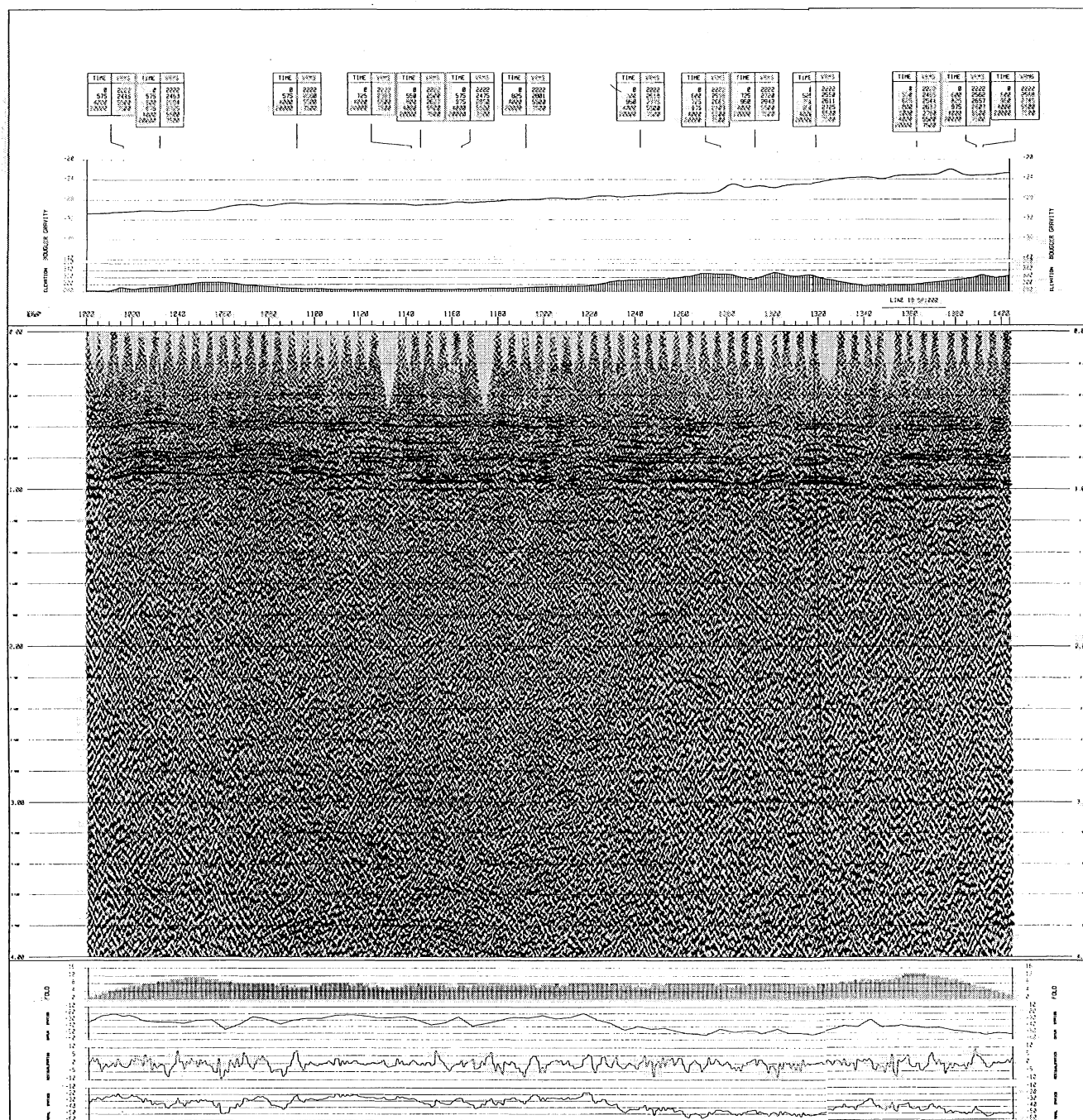
DATE : NOVEMBER 1987

HORIZONTAL SCALE : 1:100000  
VERTICAL SCALE : 1:10000

PLACEMENT : 1:100000  
1:100000  
1:100000  
1:100000

Figure 9b. Traverse 18 (SP1620-2088) Final Stack



BUREAU OF MINERAL  
RESOURCES

SURVEY : S.E. QUEENSLAND 1986  
AREA : MITCHELL, QUEENSLAND

LINE : 19  
STATIONS: 1000-1404

FINAL STACK

EAST

## RECORDING PARAMETERS

```

SHOT BY : DFR
DATE : OCTOBER 1986

SYSTEM TYPE : SERIAL SIOCB
TAPE FORMAT : 56(0)
DECKS : 6260 BPT, COR
RECORD LENGTH: 20 SECONDS
SAMPLE RATE : 2 HSEC

SOURCE TYPE : DMMHTE
CHARGE : 0.2 KG
DEPTH : 4201 (W)E

SP INTERVAL : 750M
SPREAD PATTERN: VARIABLE
NO OF CHANNELS: 72 - 96
MAX. OFFSETS : 2100' S/2000'
GROUP PATTERN : 16 IN-LINE, 40 SPRINGS
GROUP INTERVAL: 600'
COVERAGE : 100%

```

## PROCESSING SEQUENCE

- (1) DEMULTIPLEX SEED TO SEGMENTED INTERVAL
- (2) GEOMETRY DEFINITION
- (3) QUALITY CONTROL DISPLAYS AND TRACE EDITS
- (4) SPHERICAL DIVERGENCE CORRECTION
- (5) BOUNCING OF TRACE AMPLITUDES
- (6) AMPLITUDE SPINES ELIMINATED
- (7) COHERENT ENERGY PLECTION
- (8) TIME VARIANT GAIN COMPENSATION
- (9) STATICS COMPUTATION BY UNIFORM METHOD  
DATA1.D001, V00=200000, S1=100000/5
- (10) COP SORT AND BRUTE STACK
- (11) VELOCITY ANALYSES WITH STATICS APPLIED
- (12) RESIDUAL STATICS COMPUTATION
- (13) VELOCITY ANALYSES WITH RESIDUAL STATICS APPLIED
- (14) NORMAL MEANOUT CORRECTION
- (15) POST-STACK NMO RATE (200, STRETCH)
- (16) TIME VARYING EQUILATION (GATE LENGTH 50000)
- (17) COMMON DEPTH POINT STACK
- (18) BENDPASS FILTER  

|            |                               |
|------------|-------------------------------|
| TIME (SEC) | BENDPASS(HZ)/SLOPE(100/0.001) |
| 0.0        | 400.00 / 100.00               |
| 1.0        | 15.00 / 15.00                 |
| 2.0        | 15.00 / 15.00                 |
| 4.0        | 10.00 / 10.00                 |
- (19) TIME VARYING EQUILATION (GATE LENGTH 20000)
- (20) DISPLAY

PROCESSED BY:  
BUREAU OF MINERAL RESOURCES,  
GEOLOGY AND GEOPHYSICS

DIVISION OF GEOPHYSICS  
CANBERRA, A.C.T.

QUALITY CONTROL CHECK

GEOPHYSICISTS : MIKE SEXTON  
: DAVID JOHNSTONE  
: KEVIN SYKE-UYSTER

DATE : NOVEMBER 1987

HORIZONTAL SCALE: 13.67 FEET/INCH  
34.72 FEET/INCH  
(1 CM = 410.1 M)  
(1 INCH = 1241.6 M)

VERTICAL SCALE: 18.8 CM/SEC  
3.937 IN/SEC

POLARITY: + VE ON TAP = UPWARD GROUND DISPLACEMENT  
(I.E. REVERSE SEG CONVENTION)

## **PRELIMINARY RESULTS**

The preliminary final stack seismic sections are briefly discussed to highlight aspects of the data obtained.

### **3.1 Beenleigh Block Area:**

Although Traverses 1 (1986) and 2 (1986) were only each of 4 km length the preliminary seismic sections display coherent seismic events beneath the Beenleigh Block. The seismic events on Traverses 1 (1986) and 2 (1986) are difficult to correlate with the seismic events on the eastern end of Traverse 16 (1984) due to 10 km and 15 km data gaps to Traverses 1 (1986) and 2 (1986) respectively. The seismic sections for Traverses 1 (1986) and 2 (1986) do however display some similarities although an interpretation of the deep events is difficult. Considering the interpretation of Korsch & others (1986) for the eastern end of Traverse 16 (1984), the Beenleigh Terrane is an accretionary wedge with a maximum thickness of about 4.6 km and represented on the seismic section as a non-reflective zone from the surface to 2 sec (TWT). Applying a similar interpretation, Traverse 1 (1986) displays a non-reflective zone from the surface to 1.1 sec (TWT) representing a Beenleigh Terrane thickness of about 2.5 km. Along Traverse 2 (1986) the non-reflective zone ranges from the surface to 1.3 sec (TWT) representing a Beenleigh Terrane thickness of 3.0 km. Both Traverses 1 (1986) and 2 (1986) also display a package of seismic events from about 1 sec to 3 sec (about 6.5 km) beneath the interpreted Beenleigh Terrane with apparent dips ranging from 0 deg to 20 deg to the east, compared with apparent dips of 9 deg to 31 deg to the west on Traverse 16 (1984). The acquisition of additional seismic data over the Beenleigh Block has provided additional seismic data but at the same time shown the need for further seismic survey work if a better understanding of the seismic events in the area is to be achieved. The acquisition of additional seismic data however is severely limited due to increasing housing development and urbanisation in the Beenleigh area.

### **3.2 Darling Downs Area:**

The main objective of recording Traverses 15 and 17 in the region of Dalby and Toowoomba was to complete the seismic data coverage between Traverses 14 and 16 recorded in 1984 by BMR. The seismic data quality of the eastern end of Traverse 14 and western end of Traverse 16 were poor, with stacked seismic sections displaying very few reflection events. The poor data quality is attributed to both the presence of near surface and surface basalts, and the relatively thin sedimentary pile which is difficult to profile using large geophone intervals as those used by BMR. From the recording of Traverse 14 and 16 it was anticipated the data quality from the recording of Traverses 15 and 17 would also be poor. However, although the seismic events in the sedimentary section are poor, some resemblance of deep seismic events were recorded. The data will be integrated with the 1984 seismic data to provide a regional interpretation of the tectonic history of the area.

### **3.3 Mitchell-Roma Area:**

The seismic reflection data recorded along Traverses 18 and 19 show prominent mid-crustal seismic events at between 3 and 5 seconds (TWT) which correspond to the prominent seismic event on Traverse 14 recorded in 1984 near SP 4033. Preliminary F-K migration of the seismic section along Traverse 14 suggests that the strong mid-crustal events are strong diffraction events originating from batholith type structures at mid-crustal depths. Preliminary analysis of the coincident refraction data along Traverses 14 and 18 also suggests an increase in velocity from 6.0 to 6.2 km/s in the zone of the prominent mid-crustal events between 3 and 5 seconds (TWT). From the deep seismic reflection data, the "Moho" is interpreted to be between 12 and 13 seconds (TWT), based on a change in seismic character, with a southerly dip on Traverse 18 with a Moho depth of 36 km in the north and 39 km in the south (using a velocity of 6 km/s). Similarly the depth to basement is shallower in the north than the south, and the mid-crustal seismic events display a similar trend. Overall, the seismic data shows that the prominent mid-crustal event recorded in 1984 on Traverse 14 centred at SP 4033 is a north-south trending batholith type structure at mid-crustal depths (9 to 15 km) with a structural dip trend to the south of 4 degrees.

### **ACKNOWLEDGEMENTS**

The authors acknowledge the contributions and efforts made by all members of the 1986 seismic party. The cooperation and assistance from landowners in all three areas of the survey was gratefully appreciated. The assistance provided by Geoff Bell from Seismic Supply International Ltd. in fault finding the Sercel SN368 was also appreciated.

## REFERENCES

- BRACEWELL, R. and FINLAYSON, D.M., 1987. West Surat Basin Survey, 1986: Operational Report, Bur. Min. Resour. Aust., Record 1987/21.
- JOHNSTONE, D.W., SEXTON, M.J. and TAYLOR, F.J., 1987. Sercel SN368 Equipment Tests, Millmerran, Queensland, 1986. Bur. Min. Resour. Aust., Record 1987/16.
- KORSCH, R.J., LINDSAY, J.F., O'BRIEN, P.E., SEXTON, M.J. and WAKE-DYSTER, K.D., 1986. Deep crustal seismic reflection profiling, New England Orogen, eastern Australia: Telescoping of the crust and a hidden deep layered sedimentary sequence. *Geology*, 14, 982-985.
- WAKE-DYSTER, K.D. and JOHNSTONE, D.W., 1985. Southeast Queensland seismic survey, 1984, Operational Report. Bur. Min. Resour. Aust., Record 1985/42.

## APPENDIX 1

### Operational Statistics

|                                     |            |
|-------------------------------------|------------|
| Drilling crew departed Canberra     | 25-08-1986 |
| Recording crew departed Canberra    | 01-09-1986 |
| Drilling commenced                  | 01-09-1986 |
| Recording commenced                 | 09-09-1986 |
| Drilling crew returned to Canberra  | 23-10-1986 |
| Recording crew returned to Canberra | 27-11-1986 |

|                              |        |
|------------------------------|--------|
| Total line kilometres        | 181 km |
| Number of traverses recorded | 6      |

### Recording:

|                                       |    |
|---------------------------------------|----|
| Total number of recording days worked | 32 |
| Recording days lost:                  |    |
| Due to campshifts                     | 4  |
| Due to adverse wet weather            | 3  |
| Due to instrument breakdown           | 15 |

### Reflection:

|                                                  |                |
|--------------------------------------------------|----------------|
| CDP fold                                         | 6-16 (ave 6-8) |
| Total number of shots                            | 576            |
| Average number of production shots/recording day | 18             |
| Average surface coverage/recording day           | 5.6 km         |
| Maximum number of production shots in one day    | 36             |
| Explosives used                                  | 5725 kg        |
| Detonators used                                  | 580            |
| Average charge/production shot                   | 9.9 kg         |

### Crustal Refraction:

|                       |         |
|-----------------------|---------|
| Total number of shots | 14      |
| Explosives used       | 4400 kg |
| Detonators used       | 68      |

**Drilling:**

|                                           |         |
|-------------------------------------------|---------|
| Number of drilling rigs                   | 4       |
| Total number of rig days worked           | 111     |
| Rig days lost:                            |         |
| Due to campshifts                         | 9       |
| Due to adverse weather                    | 17      |
| Due to equipment breakdowns & maintenance | 8       |
| Reflection shotholes;                     |         |
| Total number of shotholes                 | 576     |
| Total metres drilled                      | 19188 m |
| Ave depth/shothole                        | 33 m    |
| Crustal refraction shotholes;             |         |
| Total number of shotholes                 | 34      |
| Total metres drilled                      | 1360 m  |
| Ave depth/shothole                        | 40 m    |
| Average number of holes/rig/day           | 5.5     |

## APPENDIX 2

### Seismic Survey Personnel

BMR, Division of Geophysics

Principal Investigators:

K.D. Wake-Dyster

D.M. Finlayson

Party Leader:

K.D. Wake-Dyster

Drilling Supervisor:

E.H. Cherry

Party Clerk: (First 2 weeks of survey)

J.A. Somerville

D. Lewis-Hughes

Geophysicists:

T. Barton

D.W. Johnstone (Sept)

F.J. Taylor (Nov)

Technical Officers (Engineering):

G. Jennings

J. Whatman (Sept)

Technical Officers (Science):

G. Price (Sept-Oct)

D. Pfister (Oct)

Drillers:

A. Zoska

T. Shanahan

D. Eaton

A. Maher

Mechanics:

A. Crawford

T. Johnson

Field Assistants: (Explosives)

R.D.E. Cherry

S. Howard

A.C. Takken

Temporary Personnel:

Drilling Assistants

4

Cooks

2

Cook's Assistant

2

Field Hands

11

Australian Survey Office, Brisbane

Surveyor

J. Eggink

Technical Officer (Surveying)

V. Harrison

Chainmen

2

Contract Bulldozer

Lussvale Pastoral Company, "Foyleview", Mitchell, Qld.

Operator: J. Manns (Sept-Oct)

## APPENDIX 3

### Seismic Survey Vehicles

#### Recording:

|                        |                                |         |
|------------------------|--------------------------------|---------|
| Recording truck        | Mercedes 911 4tonne 4X4        | ZBE-748 |
| Workshop truck         | Mercedes 911 5tonne 4X4        | ZBE-689 |
| Water tanker           | International D1610 3tonne 4X4 | ZSU-592 |
| Cable truck            | Mercedes 911 4tonne 4X4        | ZBE-633 |
| Stores truck           | Mercedes 911 4tonne 4X4        | ZUE-169 |
| Computer truck         | International 1830C 8tonne     | ZUE-121 |
| Geophone carrier       | Jeep J20 V8 4X4                | ZBE-612 |
| Geophone carrier       | Jeep J20 V8 4X4                | ZBE-613 |
| Geophone carrier       | Jeep J20 V8 4X4                | ZBE-620 |
| Shooting truck         | Toyota tray top, 4X4           | ZBE-649 |
| Supply truck           | Jeep tray top, 6cyl, 4X4       | ZUE-142 |
| Personnel carrier      | Toyota troop carrier, 4X4      | ZSV-624 |
| Personnel carrier      | Toyota troop carrier, 4X4      | ZBE-731 |
| Reconnaissance vehicle | Toyota Hilux, 4X4              | ZUE-171 |
| Office                 | 4 wheel trailer                | ZTL-739 |
| Kitchen                | 4 wheel trailer                | ZTL-914 |
| Ablutions              | 4 wheel trailer                | ZTI-344 |
| Generator              | 4 wheel trailer                | ZTV-021 |
| Stores                 | 4 wheel trailer                | ZTV-020 |
| Water                  | 2 wheel trailer                | ZTV-018 |

#### Drilling:

|                     |                             |         |
|---------------------|-----------------------------|---------|
| Drilling rigs       | Mayhew 1000/Mack R600, 8X6  | 4       |
| Drill water tankers | Mack R875, 6X6, 8645 litres | 4       |
| Water tanker        | Mercedes 911 4tonne 4X4     | ZUE-151 |
| Workshop            | Mercedes 911 4tonne 4X4     | ZBE-647 |
| Explosives truck    | International 1830C 8tonne  | ZUE-136 |
| Stores truck        | Mercedes 911 4tonne 4X4     | ZBE-686 |
| Preloading truck    | Toyota tray top, 4X4        | ZUE-167 |
| Personnel carrier   | Toyota troop carrier, 4X4   | ZSV-730 |
| Personnel carrier   | Toyota troop carrier, 4X4   | ZBE-733 |
| Drilling spares     | 4 wheel trailer             | ZTL-511 |
| Kitchen             | 4 wheel trailer             | ZTL-879 |
| Ablutions           | 4 wheel trailer             | ZTI-343 |
| Workshop            | 4 wheel trailer             | ZTV-023 |
| Generator           | 2 wheel trailer             | ZTL-984 |
| Welding             | 2 wheel trailer             | ZTL-501 |
| Stores              | 4 wheel trailer             | ZTL-916 |
| Water               | 2 wheel trailer             | ZTL-015 |

## APPENDIX 4

### Spread and Recording Parameters

|                                   |         |
|-----------------------------------|---------|
| Spread length                     | 5760 m  |
| Number of channels (max)          | 96      |
| Number of station units available | 109     |
| Geophone station interval         | 60 m    |
| CDP fold                          | 6-16    |
| Number geophones/trace            | 16      |
| Geophone pattern (GSC-20D)        | in-line |
| Geophone spacing                  | 4 m     |

Blaster;

Electrotech BC-8A (Sept-Oct)

OYO Model 1340 (Nov)

Camera;

SIE ERC-10, 48 trace + auxiliaries

Sercel SN368 instrument settings:

|                                                           |                   |
|-----------------------------------------------------------|-------------------|
| Recording mode                                            | digital           |
| Tape format                                               | SEG-D Multiplexed |
| Number of input channels:                                 |                   |
| Data                                                      | 96                |
| Auxiliary                                                 | 4                 |
| Tape: 9 track, 6250bpi GCR, 0.5inch, 8.5inch reel, 1200ft |                   |
| Record length                                             | 20 second         |
| Sample rate                                               | 2 ms              |

Input filters;

|              |               |
|--------------|---------------|
| Low-cut      | 8 Hz/18db/Oct |
| Hi-cut       | 178 Hz        |
| Pre-Amp Gain | 7**2          |

Playback Parameters;

|                   |       |
|-------------------|-------|
| Low-cut           | 12 Hz |
| Hi-cut            | 90 Hz |
| Slope             | 18 ms |
| Seis Monitor Gain | 42 db |
| Output Adjust     | 4 db  |
| Gain Curve        | 1     |
| Release Time      | 10 ms |
| Compression Delay | 8 ms  |
| Early Gain        | 0 db  |
| AGC               | 1     |
| Recovery Delay    | 32 ms |

## APPENDIX 5

### Traverse recording spread parameters & seismic line intersections

#### 1. Beenleigh Area:

##### Traverse 1 (1986)

|                                                               |       |
|---------------------------------------------------------------|-------|
| Orientation<br>(High SP numbers East,<br>Trace 1 to the West) | E-W   |
| Length                                                        | 4 km  |
| First Geophone station                                        | 1000  |
| Last Geophone station                                         | 1067  |
| First Shotpoint                                               | 1000  |
| Last shotpoint                                                | 1067  |
| Geophone station interval                                     | 60 m  |
| Shotpoint interval                                            | 360 m |

##### Traverse 2 (1986)

|                                                               |       |
|---------------------------------------------------------------|-------|
| Orientation<br>(High SP numbers East,<br>Trace 1 to the West) | E-W   |
| Length                                                        | 4 km  |
| First Geophone station                                        | 1000  |
| Last Geophone station                                         | 1067  |
| First Shotpoint                                               | 1000  |
| Last Shotpoint                                                | 1067  |
| Geophone Station interval                                     | 60 m  |
| Shotpoint interval                                            | 360 m |

## 2. Toowoomba Area:

### Traverse 15

|                                                  |       |
|--------------------------------------------------|-------|
| Orientation                                      | N-S   |
| (High SP numbers South,<br>Trace 1 to the North) |       |
| Length                                           | 22 km |
| First Geophone station                           | 1000  |
| Last Geophone station                            | 1361  |
| First Shotpoint                                  | 1000  |
| Last Shotpoint                                   | 1361  |
| Geophone Station interval                        | 60 m  |
| Shotpoint interval (nominal)                     | 360 m |

### Traverse 17

|                                                |       |
|------------------------------------------------|-------|
| Orientation                                    | E-W   |
| (High SP numbers East,<br>Trace 1 to the West) |       |
| Length                                         | 58 km |
| First Geophone station                         | 986   |
| Last Geophone station                          | 1959  |
| First Shotpoint                                | 1002  |
| Last Shotpoint                                 | 1959  |
| Geophone Station interval                      | 60 m  |
| Shotpoint interval (nominal)                   | 360 m |

### 3. Mitchell Area:

#### Traverse 18

|                                                  |       |
|--------------------------------------------------|-------|
| Orientation                                      | N-S   |
| (High SP numbers North,<br>Trace 1 to the South) |       |
| Length                                           | 69 km |
| First Geophone station                           | 940   |
| Last Geophone station                            | 2088  |
| First Shotpoint                                  | 940   |
| Last Shotpoint                                   | 2088  |
| Geophone Station interval                        | 60 m  |
| Shotpoint interval (nominal)                     | 360 m |

#### Traverse 19

|                                                |       |
|------------------------------------------------|-------|
| Orientation                                    | E-W   |
| (High SP numbers East,<br>Trace 1 to the West) |       |
| Length                                         | 24 km |
| First Geophone station                         | 1000  |
| Last Geophone station                          | 1404  |
| First Shotpoint                                | 1000  |
| Last Shotpoint                                 | 1404  |
| Geophone interval                              | 60 m  |
| Shotpoint interval                             | 360 m |

### 4. Seismic Line Intersections

|                 |         |   |                 |         |
|-----------------|---------|---|-----------------|---------|
| BMR Traverse 15 | SP 1067 | - | BMR Traverse 14 | SP 7817 |
| BMR Traverse 15 | SP 1293 | - | BMR Traverse 17 | SP 1000 |
| BMR Traverse 17 | SP 1959 | - | BMR Traverse 16 | SP 0707 |
| BMR Traverse 18 | SP 1000 | - | BMR Traverse 19 | SP 1362 |
| BMR Traverse 18 | SP 1329 | - | BMR Traverse 14 | SP 4033 |

## APPENDIX 6

### Operational details, Gravity Survey

1. The survey commenced on the 10th September 1986 and was completed on the 26th November 1986.
2. 521 new gravity stations were read with an average station spacing of 360m.
3. BMR gravity meter, Master Worden MW548 was used on the survey. For data reduction a calibration scale factor of 0.10935 mgal/dial division was adopted. Calibration runs were made on both the Canberra and Brisbane calibration ranges at the beginning and end of the survey.
4. The survey was tied to the following base stations.

| Station                                  | Value     | Lat       | Long       | Elev(m) |
|------------------------------------------|-----------|-----------|------------|---------|
| 7390.0247<br>TAA Brisbane<br>Airport     | 979159.57 | 27.431667 | 153.083333 | 6.5     |
| 7213.0147<br>Ansett Brisbane<br>Airport  | 979159.89 | 27.430000 | 153.081667 | 6.0     |
| 6491.1007<br>Warwick P.O.                | 979100.92 | 28.216667 | 152.031667 | 458.96  |
| 6491.2007<br>Warwick Courthouse          | 979100.98 | 28.215000 | 152.030000 | 458.48  |
| 6491.9007<br>Warwick Airport             | 979094.59 | 28.150000 | 151.943333 | 458.26  |
| 5099.9959<br>Roma Nurse's Home           | 978979.35 | 26.570000 | 148.773333 | 321.61  |
| 6491.0159<br>Roma Airport                | 978979.50 | 26.545000 | 148.778333 | 304.03  |
| 6491.2025<br>Mitchell<br>Railway Station | 978969.20 | 26.490000 | 147.965000 | 337.77  |
| 6491.9025<br>Mitchell Airport            | 978967.38 | 26.490000 | 147.940000 | 341.89  |

5. All stations were seismic shotpoint or geophone stations and were optically obtained to third-order standard.
6. Gravity observers were J.Crossley, K.D.Wake-Dyster and J.Whatman.

## APPENDIX 7

### Geometry Information for Seismic Traverses

#### BEENLEIGH LINE 1

|         |          |      |         |          |      |      |      |
|---------|----------|------|---------|----------|------|------|------|
| LINE    | STATIONS |      |         |          |      |      |      |
| LOCN    | 1000     | LXY  | 000000. | 0000000. |      |      |      |
| LOCN    | 1067     | LXY  | 004020. | 0000000. |      |      |      |
| ELEV    | 1000     |      |         |          |      |      |      |
| 5.43    | 4.82     | 4.54 | 3.36    | 2.80     | 2.74 | 3.52 | 3.20 |
| 2.67    | 1.84     | 2.64 | 2.89    | 2.70     | 2.74 | 2.32 | 2.42 |
| 2.44    | 2.65     | 2.76 | 2.75    | 2.94     | 2.83 | 3.20 | 3.11 |
| 3.05    | 2.88     | 2.96 | 2.72    | 2.88     | 1.82 | 1.98 | 1.69 |
| 2.02    | 1.91     | 1.76 | 1.38    | 1.79     | 1.39 | 1.43 | 1.09 |
| 1.51    | 1.61     | 1.82 | 1.90    | 2.03     | 2.03 | 2.18 | 2.26 |
| 2.27    | 2.21     | 2.08 | 1.93    | 1.90     | 1.95 | 1.90 | 1.88 |
| 2.07    | 2.14     | 2.25 | 2.20    | 2.06     | 2.04 | 2.17 | 2.11 |
| 1.57    | 1.82     | 1.30 | 1.30    |          |      |      |      |
| PATTERN | 1        |      |         |          |      |      |      |
| PSTAT   | 1000     |      |         |          |      |      |      |
| 1       | 1000     |      |         |          |      |      |      |
| 96      | 1095     |      |         |          |      |      |      |
| SOURCE  | 1        | 96   | IN-PER  |          |      |      |      |
| SHOT    | 1        | 1000 |         | 1        | 1000 |      |      |
| SHOT    | 2        | 1002 |         | 1        | 1000 |      |      |
| SHOT    | 3        | 1004 |         | 1        | 1000 |      |      |
| SHOT    | 4        | 1006 |         | 1        | 1000 |      |      |
| SHOT    | 5        | 1008 |         | 1        | 1000 |      |      |
| SHOT    | 6        | 1014 |         | 1        | 1000 |      |      |
| SHOT    | 7        | 1022 |         | 1        | 1000 |      |      |
| SHOT    | 8        | 1028 | -10     | 1        | 1000 |      |      |
| SHOT    | 9        | 1034 |         | 1        | 1000 |      |      |
| SHOT    | 10       | 1041 |         | 1        | 1000 |      |      |
| SHOT    | 11       | 1046 | -10     | 1        | 1000 |      |      |
| SHOT    | 12       | 1051 | 30      | 1        | 1000 |      |      |
| SHOT    | 13       | 1054 | 15      | 1        | 1000 |      |      |
| SHOT    | 14       | 1059 | 10      | 1        | 1000 |      |      |
| SHOT    | 15       | 1061 |         | 1        | 1000 |      |      |
| SHOT    | 16       | 1064 |         | 1        | 1000 |      |      |
| HOLE    | 1        | 14   | 8       |          |      |      |      |
| HOLE    | 2        | 18   | 6       |          |      |      |      |
| HOLE    | 3        | 22   | 10      |          |      |      |      |
| HOLE    | 4        | 22   | 14      |          |      |      |      |
| HOLE    | 5        | 21   | 12      |          |      |      |      |
| HOLE    | 6        | 27   | 18      |          |      |      |      |
| HOLE    | 7        | 17   | 10      |          |      |      |      |
| HOLE    | 8        | 6    | 8       |          |      |      |      |
| HOLE    | 9        | 22   | 14      |          |      |      |      |
| HOLE    | 10       | 24   | 14      |          |      |      |      |
| HOLE    | 11       | 13   | 12      |          |      |      |      |
| HOLE    | 12       | 6    | 6       |          |      |      |      |
| HOLE    | 13       | 23   | 14      |          |      |      |      |
| HOLE    | 14       | 21   | 5       |          |      |      |      |
| HOLE    | 15       | 18   | 12      |          |      |      |      |

HOLE 16 27 16

# BEENLEIGH LINE 2

|       |          |       |         |          |       |      |       |
|-------|----------|-------|---------|----------|-------|------|-------|
| LINE  | STATIONS |       |         |          |       |      |       |
| LOCN  | 1000     | LXY   | 000000. | 0000000. |       |      |       |
| LOCN  | 1067     | LXY   | 004020. | 0000000. |       |      |       |
| ELEV  | 1000     |       |         |          |       |      |       |
| 10.68 | 8.14     | 6.50  | 6.00    | 5.63     | 5.47  | 5.81 | 7.98  |
| 11.28 | 11.45    | 7.79  | 4.34    | 4.09     | 6.14  | 8.66 | 10.15 |
| 7.27  | 2.68     | 1.38  | 1.36    | 1.31     | 1.33  | 1.10 | 1.96  |
| 5.28  | 7.30     | 7.44  | 7.18    | 5.49     | 3.31  | 2.77 | 2.47  |
| 3.60  | 4.11     | 2.29  | 1.47    | 1.34     | 1.90  | 5.13 | 9.66  |
| 12.85 | 14.34    | 13.65 | 8.89    | 3.33     | 1.64  | 1.82 | 3.79  |
| 8.43  | 11.41    | 12.78 | 12.08   | 9.94     | 6.58  | 6.02 | 7.18  |
| 12.92 | 17.51    | 20.86 | 22.92   | 19.28    | 14.36 | 9.86 | 7.07  |
| 7.16  | 10.72    | 13.45 | 14.87   |          |       |      |       |

PATTERN 1

PSTAT 1000

1 1000

96 1095

SOURCE 1 96 IN-PER

SHOT 1 1000 1 1000

SHOT 2 1002 1 1000

SHOT 3 1004 1 1000

SHOT 4 1006 1 1000

SHOT 5 1008 1 1000

SHOT 6 1014 1 1000

SHOT 7 1020 1 1000

SHOT 8 1025 1 1000

SHOT 9 1032 1 1000

SHOT 10 1039 1 1000

SHOT 11 1045 10 1 1000

SHOT 12 1061 1 1000

SHOT 13 1067 1 1000

HOLE 1 18 12

HOLE 2 18 9

HOLE 3 22 12

HOLE 4 13 9

HOLE 5 18 9

HOLE 6 22 11

HOLE 7 18 9

HOLE 8 18 12

HOLE 9 5 8

HOLE 10 18 27

HOLE 11 18 10

HOLE 12 40 31

HOLE 13 36 22

# TOOWOOMBA LINE 15

|      |          |     |              |
|------|----------|-----|--------------|
| LINE | STATIONS |     |              |
| LOCN | 1000     | LXY | 4090. 72488. |
| LOCN | 1061     | LXY | 2714. 69097. |
| LOCN | 1113     | LXY | 2295. 66005. |

|         |        |        |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|--------|--------|
| LOCN    | 1293   | LXY    | 848.   | 55313. |        |        |        |
| LOCN    | 1352   | LXY    | 374.   | 51807. |        |        |        |
| LOCN    | 1361   | LXY    | 356.   | 51255. |        |        |        |
| ELEV    | 1000   |        |        |        |        |        |        |
| 359.50  | 359.55 | 359.63 | 359.71 | 359.83 | 360.11 | 360.02 | 360.12 |
| 360.09  | 360.12 | 359.95 | 360.00 | 359.97 | 360.21 | 360.26 | 360.12 |
| 360.10  | 360.10 | 360.23 | 360.16 | 360.22 | 360.24 | 360.36 | 360.32 |
| 360.41  | 360.45 | 360.54 | 360.48 | 360.55 | 360.50 | 360.57 | 360.59 |
| 360.48  | 360.37 | 360.31 | 360.23 | 360.22 | 360.28 | 360.19 | 360.34 |
| 360.49  | 360.45 | 360.40 | 360.35 | 360.28 | 360.29 | 360.23 | 360.09 |
| 360.18  | 360.28 | 360.40 | 360.29 | 360.41 | 360.43 | 360.39 | 360.52 |
| 360.62  | 360.61 | 360.57 | 360.52 | 360.57 | 360.91 | 360.57 | 360.50 |
| 360.61  | 360.53 | 361.11 | 360.66 | 360.98 | 361.02 | 361.38 | 361.49 |
| 361.29  | 361.26 | 361.24 | 361.24 | 361.29 | 361.28 | 361.22 | 361.09 |
| 361.05  | 361.25 | 361.32 | 361.40 | 361.44 | 361.46 | 361.44 | 361.47 |
| 361.32  | 361.30 | 361.38 | 361.49 | 361.53 | 361.54 | 361.66 | 361.64 |
| 361.65  | 361.68 | 361.52 | 361.53 | 361.63 | 361.65 | 361.60 | 361.52 |
| 361.37  | 361.34 | 361.32 | 361.21 | 361.26 | 361.17 | 361.10 | 361.00 |
| 360.94  | 360.76 | 360.03 | 360.69 | 360.72 | 360.70 | 360.68 | 360.60 |
| 360.56  | 360.53 | 360.43 | 360.27 | 360.04 | 360.16 | 360.02 | 359.95 |
| 359.97  | 359.90 | 359.83 | 359.69 | 359.61 | 359.67 | 359.57 | 359.58 |
| 359.63  | 359.54 | 359.50 | 359.41 | 359.35 | 359.34 | 359.35 | 359.30 |
| 359.13  | 359.07 | 359.04 | 358.92 | 358.99 | 358.96 | 358.92 | 358.91 |
| 358.87  | 358.89 | 358.85 | 359.13 | 358.89 | 358.83 | 358.82 | 358.80 |
| 358.81  | 358.87 | 358.84 | 358.81 | 358.71 | 358.63 | 358.60 | 358.60 |
| 358.60  | 358.62 | 358.60 | 358.62 | 358.67 | 358.70 | 358.60 | 358.62 |
| 358.56  | 358.50 | 358.51 | 358.68 | 358.69 | 358.75 | 358.77 | 358.79 |
| 358.79  | 358.85 | 358.92 | 358.99 | 359.06 | 359.11 | 359.23 | 359.33 |
| 359.34  | 359.40 | 359.51 | 359.54 | 359.60 | 359.64 | 359.56 | 359.56 |
| 359.61  | 359.61 | 359.49 | 359.60 | 359.55 | 359.58 | 359.66 | 359.70 |
| 359.71  | 359.78 | 359.81 | 360.03 | 359.75 | 359.77 | 359.80 | 359.84 |
| 359.83  | 360.03 | 360.25 | 359.95 | 359.99 | 359.87 | 359.92 | 359.93 |
| 359.95  | 359.97 | 360.01 | 359.96 | 360.10 | 360.22 | 360.02 | 360.00 |
| 359.98  | 359.91 | 359.93 | 359.95 | 359.95 | 359.89 | 359.76 | 359.90 |
| 359.93  | 359.84 | 359.83 | 359.79 | 359.83 | 359.87 | 359.86 | 359.88 |
| 359.88  | 359.97 | 359.95 | 359.95 | 359.89 | 359.96 | 359.94 | 359.83 |
| 359.45  | 359.43 | 359.88 | 360.06 | 360.13 | 360.10 | 360.22 | 360.26 |
| 360.29  | 360.20 | 360.37 | 360.44 | 360.45 | 360.56 | 360.69 | 360.85 |
| 360.82  | 360.86 | 360.88 | 361.13 | 361.25 | 361.22 | 361.24 | 361.33 |
| 361.40  | 361.41 | 361.46 | 361.45 | 361.51 | 361.56 | 361.66 | 361.69 |
| 361.76  | 361.83 | 361.87 | 362.14 | 362.38 | 362.23 | 362.15 | 362.17 |
| 362.31  | 362.53 | 362.62 | 362.71 | 362.82 | 362.69 | 362.76 | 362.85 |
| 363.04  | 363.12 | 363.20 | 363.25 | 363.25 | 363.34 | 363.45 | 363.56 |
| 363.65  | 363.62 | 363.74 | 363.84 | 363.84 | 363.99 | 364.04 | 363.89 |
| 363.94  | 363.97 | 363.98 | 363.98 | 364.07 | 364.12 | 364.25 | 364.29 |
| 364.40  | 364.40 | 364.43 | 364.47 | 364.42 | 364.48 | 364.54 | 364.61 |
| 364.57  | 364.64 | 364.80 | 364.56 | 364.73 | 364.83 | 365.01 | 365.06 |
| 364.88  | 365.01 | 365.08 | 365.14 | 365.34 | 365.30 | 365.41 | 365.42 |
| 365.44  | 365.88 | 365.90 | 365.88 | 365.92 | 366.09 | 366.42 | 366.19 |
| 366.23  | 366.23 |        |        |        |        |        |        |
| PATTERN | 1      |        |        |        |        |        |        |
| PSTAT   | 1000   |        |        |        |        |        |        |
| 1       | 1000   |        |        |        |        |        |        |
| 96      | 1095   |        |        |        |        |        |        |
| SOURCE  | 1      | 96     | IN-PER |        |        |        |        |

|      |    |      |    |   |      |
|------|----|------|----|---|------|
| SHOT | 1  | 1000 | 17 | 1 | 1000 |
| SHOT | 2  | 1005 | 17 | 1 | 1000 |
| SHOT | 3  | 1011 | 17 | 1 | 1000 |
| SHOT | 4  | 1018 | 17 | 1 | 1000 |
| SHOT | 5  | 1023 | 17 | 1 | 1000 |
| SHOT | 6  | 1029 | 17 | 1 | 1000 |
| SHOT | 7  | 1036 | 17 | 1 | 1000 |
| SHOT | 8  | 1041 | 17 | 1 | 1005 |
| SHOT | 9  | 1047 | 17 | 1 | 1011 |
| SHOT | 10 | 1054 | 20 | 1 | 1018 |
| SHOT | 11 | 1059 | 20 | 1 | 1023 |
| SHOT | 12 | 1063 |    | 1 | 1027 |
| SHOT | 13 | 1072 |    | 1 | 1036 |
| SHOT | 14 | 1077 |    | 1 | 1041 |
| SHOT | 15 | 1083 |    | 1 | 1047 |
| SHOT | 16 | 1090 |    | 1 | 1054 |
| SHOT | 17 | 1095 |    | 1 | 1059 |
| SHOT | 18 | 1101 |    | 1 | 1065 |
| SHOT | 19 | 1108 |    | 1 | 1072 |
| SHOT | 20 | 1113 |    | 1 | 1077 |
| SHOT | 21 | 1119 |    | 1 | 1083 |
| SHOT | 22 | 1126 |    | 1 | 1090 |
| SHOT | 23 | 1131 |    | 1 | 1095 |
| SHOT | 24 | 1137 |    | 1 | 1101 |
| SHOT | 25 | 1144 |    | 1 | 1108 |
| SHOT | 26 | 1154 |    | 1 | 1108 |
| SHOT | 27 | 1162 |    | 1 | 1126 |
| SHOT | 28 | 1167 |    | 1 | 1126 |
| SHOT | 29 | 1173 |    | 1 | 1137 |
| SHOT | 30 | 1180 |    | 1 | 1144 |
| SHOT | 31 | 1185 |    | 1 | 1149 |
| SHOT | 32 | 1191 |    | 1 | 1155 |
| SHOT | 33 | 1198 |    | 1 | 1162 |
| SHOT | 34 | 1205 |    | 1 | 1169 |
| SHOT | 35 | 1209 |    | 1 | 1173 |
| SHOT | 36 | 1216 |    | 1 | 1180 |
| SHOT | 37 | 1221 |    | 1 | 1185 |
| SHOT | 38 | 1227 |    | 1 | 1191 |
| SHOT | 39 | 1234 |    | 1 | 1198 |
| SHOT | 40 | 1239 | 6  | 1 | 1203 |
| SHOT | 41 | 1245 | 10 | 1 | 1209 |
| SHOT | 42 | 1252 |    | 1 | 1216 |
| SHOT | 43 | 1263 |    | 1 | 1227 |
| SHOT | 44 | 1270 |    | 1 | 1234 |
| SHOT | 45 | 1275 | 6  | 1 | 1239 |
| SHOT | 46 | 1281 |    | 1 | 1245 |
| SHOT | 47 | 1288 | 7  | 1 | 1252 |
| SHOT | 48 | 1293 | 22 | 1 | 1257 |
| SHOT | 49 | 1299 |    | 1 | 1263 |
| SHOT | 50 | 1304 |    | 1 | 1266 |
| SHOT | 51 | 1310 |    | 1 | 1266 |
| SHOT | 52 | 1328 |    | 1 | 1266 |
| SHOT | 53 | 1335 |    | 1 | 1266 |
| SHOT | 54 | 1346 |    | 1 | 1266 |
| SHOT | 55 | 1353 |    | 1 | 1266 |

|      |    |      |    |   |      |
|------|----|------|----|---|------|
| SHOT | 56 | 1358 |    | 1 | 1266 |
| SHOT | 57 | 1361 |    | 1 | 1266 |
| HOLE | 1  | 23   | 22 |   |      |
| HOLE | 2  | 24   | 23 |   |      |
| HOLE | 3  | 36   | 30 |   |      |
| HOLE | 4  | 23   | 25 |   |      |
| HOLE | 5  | 15   | 21 |   |      |
| HOLE | 6  | 23   | 20 |   |      |
| HOLE | 7  | 22   | 22 |   |      |
| HOLE | 8  | 32   | 28 |   |      |
| HOLE | 9  | 23   | 21 |   |      |
| HOLE | 10 | 25   | 28 |   |      |
| HOLE | 11 | 15   | 20 |   |      |
| HOLE | 12 | 18   | 20 |   |      |
| HOLE | 13 | 32   | 30 |   |      |
| HOLE | 14 | 13   | 21 |   |      |
| HOLE | 15 | 36   | 30 |   |      |
| HOLE | 16 | 36   | 30 |   |      |
| HOLE | 17 | 36   | 34 |   |      |
| HOLE | 18 | 32   | 29 |   |      |
| HOLE | 19 | 22   | 22 |   |      |
| HOLE | 20 | 27   | 29 |   |      |
| HOLE | 21 | 12   | 28 |   |      |
| HOLE | 22 | 28   | 25 |   |      |
| HOLE | 23 | 18   | 22 |   |      |
| HOLE | 24 | 40   | 36 |   |      |
| HOLE | 25 | 12   | 21 |   |      |
| HOLE | 26 | 28   | 30 |   |      |
| HOLE | 27 | 40   | 37 |   |      |
| HOLE | 28 | 40   | 31 |   |      |
| HOLE | 29 | 34   | 29 |   |      |
| HOLE | 30 | 37   | 29 |   |      |
| HOLE | 31 | 26   | 21 |   |      |
| HOLE | 32 | 31   | 29 |   |      |
| HOLE | 33 | 40   | 36 |   |      |
| HOLE | 34 | 40   | 39 |   |      |
| HOLE | 35 | 40   | 39 |   |      |
| HOLE | 36 | 40   | 38 |   |      |
| HOLE | 37 | 36   | 31 |   |      |
| HOLE | 38 | 40   | 39 |   |      |
| HOLE | 39 | 36   | 36 |   |      |
| HOLE | 40 | 40   | 40 |   |      |
| HOLE | 41 | 37   | 38 |   |      |
| HOLE | 42 | 33   | 37 |   |      |
| HOLE | 43 | 16   | 29 |   |      |
| HOLE | 44 | 28   | 32 |   |      |
| HOLE | 45 | 38   | 37 |   |      |
| HOLE | 46 | 28   | 31 |   |      |
| HOLE | 47 | 40   | 40 |   |      |
| HOLE | 48 | 5    | 11 |   |      |
| HOLE | 49 | 23   | 30 |   |      |
| HOLE | 50 | 32   | 33 |   |      |
| HOLE | 51 | 40   | 34 |   |      |
| HOLE | 52 | 40   | 42 |   |      |
| HOLE | 53 | 40   | 45 |   |      |

|      |    |    |    |
|------|----|----|----|
| HOLE | 54 | 40 | 40 |
| HOLE | 55 | 38 | 44 |
| HOLE | 56 | 34 | 41 |
| HOLE | 57 | 36 | 40 |

# **TOOWOOMBA LINE 17**

| LINE   | STATIONS |        |                   |        |        |        |        |
|--------|----------|--------|-------------------|--------|--------|--------|--------|
| LOCN   | 986      | LXY    | 340016.56955427.3 |        |        |        |        |
| LOCN   | 1000     | LXY    | 340848.16955312.5 |        |        |        |        |
| LOCN   | 1104     | LXY    | 347025.56954459.4 |        |        |        |        |
| LOCN   | 1211     | LXY    | 353388.56953621.7 |        |        |        |        |
| LOCN   | 1256     | LXY    | 356064.56953264.9 |        |        |        |        |
| LOCN   | 1291     | LXY    | 357881.16952212.2 |        |        |        |        |
| LOCN   | 1379     | LXY    | 363116.46951536.3 |        |        |        |        |
| LOCN   | 1383     | LXY    | 363278.56951361.9 |        |        |        |        |
| LOCN   | 1429     | LXY    | 364771.66949038.0 |        |        |        |        |
| LOCN   | 1456     | LXY    | 365814.66947797.7 |        |        |        |        |
| LOCN   | 1486     | LXY    | 367266.76946736.2 |        |        |        |        |
| LOCN   | 1489     | LXY    | 367443.76946703.3 |        |        |        |        |
| LOCN   | 1502     | LXY    | 368021.06946178.0 |        |        |        |        |
| LOCN   | 1531     | LXY    | 369742.46945927.9 |        |        |        |        |
| LOCN   | 1543     | LXY    | 370362.76945568.4 |        |        |        |        |
| LOCN   | 1550     | LXY    | 370759.96945432.3 |        |        |        |        |
| LOCN   | 1562     | LXY    | 371489.26945444.7 |        |        |        |        |
| LOCN   | 1597     | LXY    | 372983.96943971.7 |        |        |        |        |
| LOCN   | 1604     | LXY    | 373301.16943696.9 |        |        |        |        |
| LOCN   | 1619     | LXY    | 374189.76943558.4 |        |        |        |        |
| LOCN   | 1629     | LXY    | 374714.46943268.4 |        |        |        |        |
| LOCN   | 1652     | LXY    | 375993.56943784.1 |        |        |        |        |
| LOCN   | 1749     | LXY    | 381479.96941846.0 |        |        |        |        |
| LOCN   | 1774     | LXY    | 382881.96941381.8 |        |        |        |        |
| LOCN   | 1801     | LXY    | 384321.26940591.5 |        |        |        |        |
| LOCN   | 1865     | LXY    | 388118.86940031.4 |        |        |        |        |
| LOCN   | 1954     | LXY    | 393399.96939255.9 |        |        |        |        |
| LOCN   | 1959     | LXY    | 393695.66939305.1 |        |        |        |        |
| ELEV   | 986      |        |                   |        |        |        |        |
| 362.23 | 362.23   | 362.23 | 362.23            | 362.23 | 362.23 | 362.23 | 362.23 |
| 362.23 | 362.23   | 362.23 | 362.23            | 362.23 | 362.23 |        |        |
| ELEV   | 1000     |        |                   |        |        |        |        |
| 362.23 | 362.21   | 362.58 | 363.32            | 362.57 | 362.57 | 362.56 | 362.66 |
| 362.83 | 362.92   | 363.01 | 362.95            | 363.01 | 363.06 | 363.07 | 363.09 |
| 363.12 | 363.21   | 363.24 | 363.30            | 363.35 | 363.36 | 363.38 | 363.39 |
| 363.48 | 363.64   | 363.56 | 363.56            | 363.56 | 363.62 | 363.65 | 363.71 |
| 363.73 | 363.79   | 363.79 | 363.91            | 363.86 | 363.86 | 363.85 | 363.79 |
| 363.80 | 363.80   | 363.83 | 363.90            | 363.95 | 363.99 | 364.01 | 364.17 |
| 364.28 | 364.32   | 364.47 | 364.55            | 364.65 | 364.69 | 364.75 | 364.88 |
| 365.00 | 365.11   | 365.29 | 365.29            | 365.39 | 365.45 | 365.58 | 365.67 |
| 365.81 | 365.90   | 365.98 | 366.14            | 366.31 | 366.40 | 366.51 | 366.56 |
| 366.61 | 366.75   | 366.85 | 366.89            | 366.96 | 367.06 | 367.22 | 367.18 |
| 367.27 | 367.39   | 367.52 | 367.60            | 367.64 | 367.80 | 367.94 | 367.94 |
| 368.07 | 368.14   | 368.26 | 368.41            | 368.46 | 368.57 | 368.80 | 368.83 |
| 368.98 | 369.11   | 369.23 | 369.28            | 369.40 | 369.50 | 369.72 | 369.84 |
| 369.99 | 370.28   | 370.20 | 370.34            | 370.41 | 370.50 | 370.68 | 370.65 |
| 370.83 | 370.94   | 371.15 | 371.22            | 371.33 | 371.51 | 371.66 | 371.76 |

|        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|
| 371.90 | 372.03 | 372.23 | 372.31 | 372.48 | 372.62 | 372.85 | 372.87 |
| 373.02 | 373.13 | 373.17 | 373.28 | 373.36 | 373.51 | 373.67 | 373.75 |
| 373.91 | 373.99 | 374.09 | 374.29 | 374.39 | 374.48 | 374.67 | 374.76 |
| 374.90 | 375.04 | 375.16 | 375.40 | 375.55 | 375.76 | 375.92 | 375.03 |
| 375.18 | 376.37 | 376.50 | 376.63 | 376.86 | 377.03 | 376.93 | 377.14 |
| 377.24 | 377.24 | 377.28 | 377.42 | 377.37 | 377.73 | 377.70 | 377.97 |
| 378.09 | 378.31 | 378.44 | 378.72 | 379.00 | 379.18 | 379.23 | 379.35 |
| 379.48 | 379.71 | 379.88 | 380.05 | 380.21 | 380.39 | 380.57 | 380.67 |
| 380.76 | 381.03 | 381.10 | 381.22 | 381.23 | 381.41 | 381.55 | 381.55 |
| 381.82 | 381.93 | 382.18 | 382.35 | 382.50 | 382.75 | 383.06 | 383.32 |
| 383.78 | 384.30 | 385.00 | 385.76 | 386.48 | 387.28 | 387.87 | 388.80 |
| 389.48 | 390.39 | 391.10 | 391.16 | 391.30 | 391.06 | 390.55 | 389.76 |
| 389.20 | 388.76 | 388.46 | 388.34 | 388.22 | 388.29 | 388.11 | 388.15 |
| 388.21 | 388.24 | 388.38 | 388.41 | 388.51 | 388.56 | 388.71 | 388.74 |
| 388.91 | 389.07 | 389.27 | 389.50 | 390.09 | 389.70 | 389.83 | 390.05 |
| 390.27 | 390.38 | 390.57 | 390.69 | 390.87 | 391.39 | 391.69 | 392.00 |
| 392.30 | 392.93 | 393.24 | 393.57 | 393.88 | 394.11 | 394.54 | 394.54 |
| 395.11 | 396.03 | 396.74 | 397.46 | 398.07 | 399.05 | 399.80 | 400.41 |
| 401.30 | 402.02 | 402.04 | 402.05 | 402.13 | 402.98 | 403.68 | 403.84 |
| 403.71 | 403.95 | 403.87 | 404.11 | 404.28 | 404.75 | 405.23 | 406.00 |
| 406.76 | 407.52 | 408.18 | 408.71 | 409.41 | 409.74 | 410.24 | 410.78 |
| 411.38 | 411.86 | 412.17 | 412.62 | 412.79 | 412.54 | 412.23 | 411.53 |
| 410.75 | 410.02 | 409.43 | 408.83 | 408.12 | 407.60 | 406.77 | 405.88 |
| 405.00 | 404.32 | 403.13 | 402.67 | 402.32 | 402.25 | 402.23 | 402.22 |
| 402.12 | 401.98 | 401.93 | 401.93 | 401.11 | 402.43 | 402.65 | 402.88 |
| 402.04 | 403.10 | 403.21 | 403.37 | 403.45 | 403.59 | 403.72 | 403.83 |
| 403.04 | 404.08 | 404.22 | 404.34 | 404.34 | 404.27 | 404.53 | 405.13 |
| 406.03 | 407.23 | 408.15 | 408.50 | 406.67 | 407.57 | 408.25 | 410.15 |
| 409.31 | 408.31 | 407.37 | 407.72 | 407.76 | 407.74 | 407.79 | 407.93 |
| 408.01 | 407.97 | 408.16 | 408.45 | 408.59 | 408.85 | 408.96 | 408.71 |
| 409.00 | 409.30 | 409.48 | 409.56 | 409.71 | 409.71 | 409.82 | 409.94 |
| 410.00 | 410.08 | 409.87 | 409.98 | 410.14 | 410.53 | 410.69 | 410.73 |
| 411.40 | 414.29 | 415.98 | 416.93 | 416.58 | 415.14 | 413.70 | 414.36 |
| 414.37 | 414.04 | 414.30 | 414.16 | 414.03 | 414.05 | 414.29 | 414.43 |
| 414.78 | 414.67 | 415.42 | 415.61 | 415.85 | 416.08 | 416.44 | 416.70 |
| 417.08 | 417.30 | 417.71 | 418.18 | 417.81 | 418.06 | 417.96 | 418.29 |
| 418.96 | 420.09 | 421.19 | 422.21 | 423.20 | 424.24 | 424.82 | 424.64 |
| 424.01 | 423.09 | 422.32 | 422.67 | 422.84 | 422.68 | 422.83 | 422.44 |
| 422.69 | 422.97 | 423.81 | 424.73 | 425.42 | 425.78 | 426.13 | 426.18 |
| 426.24 | 426.57 | 426.90 | 427.24 | 428.03 | 428.38 | 428.36 | 428.69 |
| 429.01 | 429.53 | 430.21 | 430.44 | 431.19 | 431.86 | 432.81 | 434.10 |
| 435.28 | 436.62 | 437.68 | 438.58 | 438.94 | 439.19 | 439.54 | 440.02 |
| 440.09 | 440.57 | 440.44 | 440.62 | 440.85 | 440.55 | 439.90 | 438.63 |
| 437.87 | 437.30 | 436.71 | 435.84 | 435.24 | 435.20 | 435.40 | 435.80 |
| 436.23 | 436.63 | 438.03 | 439.55 | 440.42 | 440.55 | 441.10 | 441.35 |
| 441.23 | 441.22 | 441.06 | 441.05 | 440.65 | 440.69 | 440.60 | 442.16 |
| 442.97 | 443.16 | 441.49 | 440.32 | 440.57 | 440.75 | 441.41 | 442.07 |
| 442.62 | 443.12 | 443.37 | 443.72 |        |        |        |        |
| ELEV   | 1500   |        |        |        |        |        |        |
| 444.20 | 444.99 | 445.16 | 446.00 | 446.23 | 446.16 | 447.30 | 447.72 |
| 448.15 | 448.59 | 449.65 | 451.00 | 451.94 | 452.75 | 454.29 | 455.01 |
| 455.57 | 456.04 | 456.78 | 457.55 | 458.31 | 459.18 | 460.06 | 460.93 |
| 461.78 | 462.49 | 463.41 | 464.11 | 465.12 | 466.30 | 467.43 | 468.23 |
| 468.96 | 469.55 | 468.86 | 470.38 | 471.52 | 473.48 | 474.04 | 474.50 |
| 475.27 | 476.35 | 477.56 | 478.59 | 479.98 | 481.20 | 482.45 | 483.28 |

|         |        |        |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|--------|--------|
| 484.83  | 487.91 | 489.05 | 489.81 | 489.97 | 491.96 | 492.35 | 493.46 |
| 494.92  | 498.03 | 500.90 | 502.87 | 503.96 | 505.63 | 506.59 | 507.86 |
| 509.96  | 511.46 | 513.73 | 515.37 | 516.62 | 517.72 | 518.32 | 518.57 |
| 519.47  | 520.70 | 520.58 | 520.03 | 522.03 | 523.06 | 524.87 | 529.18 |
| 530.00  | 532.74 | 536.49 | 539.24 | 542.20 | 544.97 | 547.35 | 550.55 |
| 553.99  | 555.80 | 557.27 | 558.11 | 558.89 | 559.38 | 561.33 | 566.27 |
| 572.25  | 583.46 | 589.80 | 595.51 | 597.69 | 595.33 | 591.89 | 588.84 |
| 585.52  | 585.77 | 585.68 | 584.92 | 586.00 | 587.64 | 587.50 | 586.14 |
| 583.85  | 581.51 | 579.90 | 580.64 | 585.75 | 587.56 | 588.20 | 588.22 |
| 587.20  | 586.28 | 585.33 | 583.90 | 582.62 | 580.72 | 578.72 | 576.18 |
| 573.33  | 572.50 | 572.43 | 572.03 | 570.76 | 568.27 | 565.23 | 564.97 |
| 566.24  | 565.56 | 562.83 | 558.84 | 555.10 | 551.86 | 551.58 | 551.79 |
| 551.35  | 552.84 | 556.74 | 557.94 | 559.78 | 566.03 | 569.83 | 570.36 |
| 569.76  | 569.46 | 568.37 | 566.27 | 563.93 | 560.53 | 557.95 | 555.78 |
| 553.67  | 551.04 | 548.95 | 547.08 | 545.18 | 543.30 | 541.27 | 539.36 |
| 537.70  | 535.90 | 534.35 | 533.09 | 532.70 | 532.95 | 534.44 | 537.52 |
| 540.45  | 542.84 | 544.37 | 545.32 | 545.69 | 545.60 | 545.19 | 544.90 |
| 544.38  | 543.65 | 542.97 | 542.20 | 541.43 | 540.76 | 540.01 | 539.52 |
| 538.83  | 538.26 | 537.69 | 537.17 | 536.80 | 536.52 | 536.03 | 535.65 |
| 535.09  | 534.45 | 534.07 | 533.76 | 533.62 | 533.64 | 533.60 | 533.57 |
| 533.86  | 534.52 | 534.53 | 534.49 | 534.56 | 534.33 | 533.36 | 531.48 |
| 530.44  | 529.01 | 527.69 | 526.59 | 525.59 | 524.82 | 524.57 | 524.41 |
| 524.34  | 524.26 | 524.77 | 525.04 | 525.07 | 524.89 | 524.54 | 524.61 |
| 524.56  | 524.18 | 524.28 | 524.21 | 524.20 | 524.07 | 523.91 | 523.45 |
| 523.28  | 522.86 | 522.66 | 522.40 | 522.34 | 522.34 | 522.52 | 522.93 |
| 523.22  | 524.11 | 524.49 | 524.94 | 525.25 | 525.39 | 525.43 | 525.10 |
| 524.89  | 524.77 | 524.93 | 524.99 | 525.30 | 525.73 | 526.13 | 526.00 |
| 525.80  | 525.69 | 525.18 | 525.17 | 524.73 | 524.06 | 523.14 | 522.37 |
| 521.52  | 520.89 | 520.17 | 519.22 | 518.68 | 518.50 | 518.61 | 519.10 |
| 519.87  | 520.55 | 521.18 | 521.89 | 522.05 | 522.84 | 523.67 | 524.33 |
| 525.03  | 525.85 | 526.21 | 526.12 | 525.91 | 526.04 | 525.84 | 526.22 |
| 526.55  | 527.37 | 527.75 | 528.52 | 528.31 | 528.40 | 527.83 | 527.94 |
| 528.12  | 528.24 | 528.42 | 528.96 | 529.23 | 529.86 | 530.41 | 531.32 |
| 532.20  | 533.18 | 533.65 | 533.72 | 532.89 | 532.73 | 532.75 | 533.13 |
| 533.57  | 534.47 | 535.35 | 536.28 | 537.15 | 537.94 | 538.63 | 539.44 |
| 539.91  | 540.25 | 540.97 | 541.05 | 540.84 | 540.03 | 539.00 | 537.72 |
| 535.87  | 534.46 | 533.46 | 533.24 | 533.33 | 533.96 | 534.86 | 536.34 |
| 537.34  | 537.72 | 537.17 | 536.12 | 535.41 | 536.01 | 536.29 | 535.18 |
| 535.25  | 535.62 | 535.94 | 536.55 | 537.79 | 538.72 | 539.48 | 539.32 |
| 539.21  | 539.66 | 536.13 | 542.83 | 545.19 | 546.58 | 544.72 | 543.22 |
| 541.57  | 539.83 | 537.87 | 536.49 | 535.17 | 534.12 | 533.77 | 533.59 |
| 534.18  | 534.32 | 532.94 | 532.15 | 532.07 | 532.91 | 533.84 | 533.01 |
| 530.92  | 528.49 | 526.03 | 523.88 | 523.41 | 524.14 | 525.78 | 527.59 |
| 528.38  | 527.10 | 525.32 | 523.38 | 522.55 | 520.16 | 515.53 | 514.45 |
| 520.40  | 523.26 | 526.53 | 530.51 | 535.18 | 539.97 | 544.85 | 548.70 |
| 552.83  | 556.78 | 559.17 | 561.44 | 562.91 | 563.24 | 564.57 | 565.40 |
| 565.90  | 566.76 | 565.92 | 563.78 | 564.25 | 566.19 | 567.34 | 568.19 |
| 569.21  | 569.95 | 569.98 | 568.76 | 570.45 | 572.01 | 573.31 | 574.74 |
| 575.05  | 573.56 | 571.27 | 568.40 | 566.64 | 564.92 | 561.81 | 557.88 |
| 553.74  | 549.71 | 545.84 | 541.81 | 538.04 | 536.10 | 536.72 | 540.19 |
| 545.25  | 549.24 | 553.54 | 556.52 | 559.92 | 562.21 | 564.32 | 565.22 |
| 568.65  | 571.69 | 575.41 | 577.40 |        |        |        |        |
| PATTERN | 1      |        |        |        |        |        |        |
| PSTAT   | 1000   |        |        |        |        |        |        |
| 1       | 1000   |        |        |        |        |        |        |

|        |      |      |        |    |      |
|--------|------|------|--------|----|------|
| 96     | 1095 | 96   | IN-PER |    |      |
| SOURCE | 1    | 1002 |        | 1  | 986  |
| SHOT   | 1    | 1005 |        | 1  | 986  |
| SHOT   | 2    | 1011 |        | 1  | 986  |
| SHOT   | 3    | 1018 |        | 1  | 986  |
| SHOT   | 4    | 1023 |        | 1  | 986  |
| SHOT   | 5    | 1029 |        | 1  | 993  |
| SHOT   | 6    | 1036 |        | 1  | 1000 |
| SHOT   | 7    | 1041 |        | 1  | 1005 |
| SHOT   | 8    | 1047 |        | 1  | 1011 |
| SHOT   | 9    | 1054 |        | 1  | 1018 |
| SHOT   | 10   | 1065 |        | 1  | 1029 |
| SHOT   | 11   | 1072 |        | 1  | 1036 |
| SHOT   | 12   | 1077 |        | 1  | 1041 |
| SHOT   | 13   | 1083 |        | 1  | 1047 |
| SHOT   | 14   | 1095 |        | 1  | 1059 |
| SHOT   | 15   | 1101 |        | 1  | 1065 |
| SHOT   | 16   | 1108 |        | 1  | 1072 |
| SHOT   | 17   | 1113 |        | 1  | 1077 |
| SHOT   | 18   | 1119 |        | 1  | 1083 |
| SHOT   | 19   | 1126 |        | 1  | 1090 |
| SHOT   | 20   | 1137 |        | 1  | 1101 |
| SHOT   | 21   | 1143 |        | 1  | 1107 |
| SHOT   | 22   | 1149 |        | 1  | 1113 |
| SHOT   | 23   | 1155 |        | 1  | 1119 |
| SHOT   | 24   | 1162 |        | 1  | 1126 |
| SHOT   | 25   | 1167 |        | 1  | 1131 |
| SHOT   | 26   | 1173 |        | 1  | 1137 |
| SHOT   | 27   | 1180 |        | 1  | 1144 |
| SHOT   | 28   | 1185 |        | 1  | 1149 |
| SHOT   | 29   | 1191 |        | 1  | 1155 |
| SHOT   | 30   | 1198 |        | 1  | 1162 |
| SHOT   | 31   | 1203 |        | 1  | 1167 |
| SHOT   | 32   | 1209 |        | 1  | 1173 |
| SHOT   | 33   | 1216 |        | 1  | 1180 |
| SHOT   | 34   | 1227 |        | 1  | 1191 |
| SHOT   | 35   | 1234 |        | 1  | 1198 |
| SHOT   | 36   | 1239 |        | 1  | 1203 |
| SHOT   | 37   | 1252 |        | 1  | 1210 |
| SHOT   | 38   | 1256 |        | 1  | 1215 |
| SHOT   | 39   | 1256 | -25    | 10 | 1220 |
| SHOT   | 40   | 1263 |        | 1  | 1227 |
| SHOT   | 41   | 1275 |        | 1  | 1239 |
| SHOT   | 42   | 1281 |        | 1  | 1245 |
| SHOT   | 43   | 1290 |        | 1  | 1254 |
| SHOT   | 44   | 1293 |        | 5  | 1257 |
| SHOT   | 45   | 1299 |        | 6  | 1263 |
| SHOT   | 46   | 1306 |        | 6  | 1270 |
| SHOT   | 47   | 1317 |        | 7  | 1270 |
| SHOT   | 48   | 1317 | 8      | 6  | 1270 |
| SHOT   | 49   | 1317 |        | 7  | 1281 |
| SHOT   | 50   | 1324 |        | 7  | 1288 |
| SHOT   | 51   | 1329 |        | 7  | 1293 |
| SHOT   | 52   | 1335 |        | 7  | 1299 |
| SHOT   | 53   | 1342 |        | 1  | 1306 |

|      |     |      |     |     |   |      |
|------|-----|------|-----|-----|---|------|
| SHOT | 54  | 1347 |     | 6   | 1 | 1311 |
| SHOT | 55  | 1353 |     |     | 1 | 1317 |
| SHOT | 56  | 1360 |     |     | 1 | 1324 |
| SHOT | 57  | 1365 |     |     | 1 | 1329 |
| SHOT | 58  | 1370 |     |     | 1 | 1334 |
| SHOT | 59  | 1379 |     |     | 1 | 1343 |
| SHOT | 60  | 1383 |     |     | 1 | 1347 |
| SHOT | 61  | 1389 |     |     | 1 | 1353 |
| SHOT | 62  | 1396 |     |     | 1 | 1360 |
| SHOT | 63  | 1401 |     |     | 1 | 1365 |
| SHOT | 64  | 1407 |     |     | 1 | 1371 |
| SHOT | 65  | 1417 |     |     | 1 | 1374 |
| SHOT | 66  | 1419 |     |     | 1 | 1383 |
| SHOT | 67  | 1425 |     |     | 1 | 1389 |
| SHOT | 68  | 1432 |     |     | 1 | 1396 |
| SHOT | 69  | 1437 |     |     | 1 | 1401 |
| SHOT | 70  | 1443 |     |     | 1 | 1407 |
| SHOT | 71  | 1483 |     | 8   | 1 | 1401 |
| SHOT | 72  | 1461 |     |     | 1 | 1401 |
| SHOT | 73  | 1468 |     |     | 1 | 1406 |
| SHOT | 74  | 1471 |     |     | 1 | 1415 |
| SHOT | 75  | 1479 |     |     | 1 | 1420 |
| SHOT | 76  | 1482 | -37 | 8   | 1 | 1428 |
| SHOT | 77  | 1482 | -18 | 8   | 1 | 1433 |
| SHOT | 78  | 1482 |     | 8   | 1 | 1446 |
| SHOT | 79  | 1482 | 8   | 8   | 1 | 1454 |
| SHOT | 80  | 1491 |     |     | 1 | 1455 |
| SHOT | 81  | 1497 |     |     | 1 | 1461 |
| SHOT | 82  | 1483 | -15 | 8   | 1 | 1465 |
| SHOT | 83  | 1502 | -25 | -15 | 1 | 1465 |
| SHOT | 84  | 1504 |     |     | 1 | 1468 |
| SHOT | 85  | 1509 |     |     | 1 | 1473 |
| SHOT | 86  | 1483 |     |     | 1 | 1480 |
| SHOT | 87  | 1515 |     |     | 1 | 1479 |
| SHOT | 88  | 1539 | 15  |     | 1 | 1479 |
| SHOT | 89  | 1522 |     |     | 1 | 1486 |
| SHOT | 90  | 1527 |     |     | 1 | 1491 |
| SHOT | 91  | 1531 |     |     | 1 | 1495 |
| SHOT | 92  | 1537 | -22 |     | 1 | 1501 |
| SHOT | 93  | 1539 |     |     | 1 | 1503 |
| SHOT | 94  | 1544 |     |     | 1 | 1508 |
| SHOT | 95  | 1551 |     |     | 1 | 1515 |
| SHOT | 96  | 1558 |     |     | 1 | 1522 |
| SHOT | 97  | 1563 |     | 7   | 1 | 1527 |
| SHOT | 98  | 1569 |     | 7   | 1 | 1533 |
| SHOT | 99  | 1576 | 6   |     | 1 | 1540 |
| SHOT | 100 | 1540 |     |     | 1 | 1540 |
| SHOT | 101 | 1581 |     |     | 1 | 1545 |
| SHOT | 102 | 1586 |     | 7   | 1 | 1550 |
| SHOT | 103 | 1594 |     |     | 1 | 1558 |
| SHOT | 104 | 1598 |     | 27  | 1 | 1562 |
| SHOT | 105 | 1605 |     | 8   | 1 | 1569 |
| SHOT | 106 | 1612 |     | 8   | 1 | 1576 |
| SHOT | 107 | 1617 |     | 8   | 1 | 1581 |
| SHOT | 108 | 1623 |     |     | 1 | 1587 |

|      |     |      |     |     |   |      |
|------|-----|------|-----|-----|---|------|
| SHOT | 109 | 1632 |     |     | 1 | 1590 |
| SHOT | 110 | 1635 |     | -8  | 1 | 1599 |
| SHOT | 111 | 1641 |     | 60  | 1 | 1605 |
| SHOT | 112 | 1647 |     |     | 1 | 1611 |
| SHOT | 113 | 1653 |     | 18  | 1 | 1617 |
| SHOT | 114 | 1658 |     | 19  | 1 | 1622 |
| SHOT | 115 | 1666 |     | 9   | 1 | 1630 |
| SHOT | 116 | 1671 |     | 9   | 1 | 1635 |
| SHOT | 117 | 1677 |     | 7   | 1 | 1641 |
| SHOT | 118 | 1684 |     | 9   | 1 | 1648 |
| SHOT | 119 | 1689 |     | 9   | 1 | 1653 |
| SHOT | 120 | 1695 |     |     | 1 | 1659 |
| SHOT | 121 | 1702 |     | 8   | 1 | 1666 |
| SHOT | 122 | 1707 |     | 9   | 1 | 1671 |
| SHOT | 123 | 1713 |     |     | 1 | 1677 |
| SHOT | 124 | 1720 |     | 9   | 1 | 1684 |
| SHOT | 125 | 1725 |     |     | 1 | 1689 |
| SHOT | 126 | 1731 |     |     | 1 | 1695 |
| SHOT | 127 | 1739 |     |     | 1 | 1703 |
| SHOT | 128 | 1748 |     |     | 1 | 1701 |
| SHOT | 129 | 1756 |     |     | 1 | 1703 |
| SHOT | 130 | 1761 |     |     | 1 | 1725 |
| SHOT | 131 | 1767 |     | 10  | 1 | 1731 |
| SHOT | 132 | 1774 |     | 21  | 1 | 1738 |
| SHOT | 133 | 1787 |     | 15  | 1 | 1738 |
| SHOT | 134 | 1787 |     | 15  | 1 | 1751 |
| SHOT | 135 | 1792 |     | 15  | 1 | 1756 |
| SHOT | 136 | 1799 |     | 15  | 1 | 1763 |
| SHOT | 137 | 1803 |     | -15 | 1 | 1767 |
| SHOT | 138 | 1810 |     | -16 | 1 | 1774 |
| SHOT | 139 | 1815 |     | -15 | 1 | 1779 |
| SHOT | 140 | 1821 |     | -15 | 1 | 1785 |
| SHOT | 141 | 1827 |     | -23 | 1 | 1791 |
| SHOT | 142 | 1834 |     | -15 | 1 | 1798 |
| SHOT | 143 | 1840 |     | -15 | 1 | 1804 |
| SHOT | 144 | 1840 | 10  | -15 | 1 | 1814 |
| SHOT | 145 | 1853 | -5  | 10  | 1 | 1815 |
| SHOT | 146 | 1853 |     | 9   | 1 | 1825 |
| SHOT | 147 | 1862 | -11 | 9   | 1 | 1826 |
| SHOT | 148 | 1870 |     | 9   | 1 | 1834 |
| SHOT | 149 | 1875 |     | 9   | 1 | 1839 |
| SHOT | 150 | 1880 |     | 9   | 1 | 1844 |
| SHOT | 151 | 1887 |     | 6   | 1 | 1851 |
| SHOT | 152 | 1893 |     |     | 1 | 1857 |
| SHOT | 153 | 1900 |     | 9   | 1 | 1857 |
| SHOT | 154 | 1900 | -7  | 9   | 1 | 1864 |
| SHOT | 155 | 1915 | 7   |     | 1 | 1857 |
| SHOT | 156 | 1915 | -6  |     | 1 | 1864 |
| SHOT | 157 | 1923 |     |     | 1 | 1864 |
| SHOT | 158 | 1929 |     |     | 1 | 1864 |
| SHOT | 159 | 1936 |     | 9   | 1 | 1864 |
| SHOT | 160 | 1941 |     |     | 1 | 1864 |
| SHOT | 161 | 1946 |     | 10  | 1 | 1864 |
| SHOT | 162 | 1954 |     | 10  | 1 | 1864 |
| SHOT | 163 | 1959 |     |     | 1 | 1864 |

|      |    |    |    |
|------|----|----|----|
| HOLE | 1  | 40 | 41 |
| HOLE | 2  | 40 | 32 |
| HOLE | 3  | 40 | 35 |
| HOLE | 4  | 32 | 32 |
| HOLE | 5  | 36 | 38 |
| HOLE | 6  | 30 | 29 |
| HOLE | 7  | 21 | 27 |
| HOLE | 8  | 25 | 21 |
| HOLE | 9  | 27 | 28 |
| HOLE | 10 | 36 | 32 |
| HOLE | 11 | 32 | 30 |
| HOLE | 12 | 36 | 32 |
| HOLE | 13 | 40 | 35 |
| HOLE | 14 | 30 | 34 |
| HOLE | 15 | 30 | 33 |
| HOLE | 16 | 23 | 31 |
| HOLE | 17 | 21 | 33 |
| HOLE | 18 | 36 | 38 |
| HOLE | 19 | 40 | 41 |
| HOLE | 20 | 40 | 43 |
| HOLE | 21 | 40 | 40 |
| HOLE | 22 | 40 | 38 |
| HOLE | 23 | 40 | 36 |
| HOLE | 24 | 40 | 38 |
| HOLE | 25 | 40 | 40 |
| HOLE | 26 | 26 | 28 |
| HOLE | 27 | 32 | 31 |
| HOLE | 28 | 40 | 31 |
| HOLE | 29 | 27 | 25 |
| HOLE | 30 | 30 | 25 |
| HOLE | 31 | 40 | 25 |
| HOLE | 32 | 40 | 25 |
| HOLE | 33 | 40 | 28 |
| HOLE | 34 | 40 | 28 |
| HOLE | 35 | 40 | 27 |
| HOLE | 36 | 40 | 29 |
| HOLE | 37 | 40 | 27 |
| HOLE | 38 | 18 | 18 |
| HOLE | 39 | 40 | 22 |
| HOLE | 40 | 40 | 28 |
| HOLE | 41 | 40 | 29 |
| HOLE | 42 | 13 | 9  |
| HOLE | 43 | 13 | 10 |
| HOLE | 44 | 40 | 27 |
| HOLE | 45 | 39 | 20 |
| HOLE | 46 | 18 | 15 |
| HOLE | 47 | 3  | 9  |
| HOLE | 48 | 9  | 8  |
| HOLE | 49 | 9  | 9  |
| HOLE | 50 | 13 | 17 |
| HOLE | 51 | 13 | 17 |
| HOLE | 52 | 11 | 15 |
| HOLE | 53 | 13 | 15 |
| HOLE | 54 | 9  | 18 |
| HOLE | 55 | 18 | 19 |

|      |     |    |    |
|------|-----|----|----|
| HOLE | 56  | 18 | 15 |
| HOLE | 57  | 18 | 17 |
| HOLE | 58  | 18 | 17 |
| HOLE | 59  | 9  | 10 |
| HOLE | 60  | 12 | 18 |
| HOLE | 61  | 11 | 17 |
| HOLE | 62  | 9  | 19 |
| HOLE | 63  | 13 | 19 |
| HOLE | 64  | 9  | 10 |
| HOLE | 65  | 9  | 11 |
| HOLE | 66  | 9  | 10 |
| HOLE | 67  | 9  | 10 |
| HOLE | 68  | 13 | 9  |
| HOLE | 69  | 9  | 9  |
| HOLE | 70  | 9  | 16 |
| HOLE | 71  | 13 | 15 |
| HOLE | 72  | 23 | 21 |
| HOLE | 73  | 13 | 19 |
| HOLE | 74  | 13 | 18 |
| HOLE | 75  | 13 | 11 |
| HOLE | 76  | 18 | 19 |
| HOLE | 77  | 18 | 14 |
| HOLE | 78  | 18 | 14 |
| HOLE | 79  | 12 | 12 |
| HOLE | 80  | 13 | 11 |
| HOLE | 81  | 9  | 8  |
| HOLE | 82  | 12 | 20 |
| HOLE | 83  | 13 | 15 |
| HOLE | 84  | 9  | 9  |
| HOLE | 85  | 9  | 10 |
| HOLE | 86  | 18 | 12 |
| HOLE | 87  | 9  | 9  |
| HOLE | 88  | 18 | 13 |
| HOLE | 89  | 13 | 17 |
| HOLE | 90  | 9  | 11 |
| HOLE | 91  | 13 | 19 |
| HOLE | 92  | 9  | 8  |
| HOLE | 93  | 14 | 11 |
| HOLE | 94  | 21 | 18 |
| HOLE | 95  | 9  | 12 |
| HOLE | 96  | 27 | 25 |
| HOLE | 97  | 34 | 30 |
| HOLE | 98  | 36 | 33 |
| HOLE | 99  | 27 | 27 |
| HOLE | 100 | 21 | 12 |
| HOLE | 101 | 12 | 14 |
| HOLE | 102 | 14 | 14 |
| HOLE | 103 | 9  | 15 |
| HOLE | 104 | 13 | 15 |
| HOLE | 105 | 18 | 14 |
| HOLE | 106 | 9  | 10 |
| HOLE | 107 | 9  | 8  |
| HOLE | 108 | 12 | 9  |
| HOLE | 109 | 11 | 9  |
| HOLE | 110 | 29 | 12 |

|      |     |    |    |
|------|-----|----|----|
| HOLE | 111 | 23 | 20 |
| HOLE | 112 | 40 | 25 |
| HOLE | 113 | 13 | 14 |
| HOLE | 114 | 9  | 10 |
| HOLE | 115 | 18 | 19 |
| HOLE | 116 | 13 | 17 |
| HOLE | 117 | 9  | 10 |
| HOLE | 118 | 9  | 9  |
| HOLE | 119 | 9  | 9  |
| HOLE | 120 | 9  | 15 |
| HOLE | 121 | 9  | 10 |
| HOLE | 122 | 12 | 10 |
| HOLE | 123 | 9  | 10 |
| HOLE | 124 | 13 | 14 |
| HOLE | 125 | 18 | 21 |
| HOLE | 126 | 13 | 10 |
| HOLE | 127 | 9  | 10 |
| HOLE | 128 | 12 | 11 |
| HOLE | 129 | 13 | 14 |
| HOLE | 130 | 13 | 15 |
| HOLE | 131 | 15 | 13 |
| HOLE | 132 | 9  | 12 |
| HOLE | 133 | 18 | 13 |
| HOLE | 134 | 18 | 14 |
| HOLE | 135 | 18 | 18 |
| HOLE | 136 | 13 | 15 |
| HOLE | 137 | 18 | 18 |
| HOLE | 138 | 23 | 22 |
| HOLE | 139 | 20 | 28 |
| HOLE | 140 | 32 | 30 |
| HOLE | 141 | 40 | 35 |
| HOLE | 142 | 36 | 29 |
| HOLE | 143 | 26 | 20 |
| HOLE | 144 | 18 | 19 |
| HOLE | 145 | 18 | 18 |
| HOLE | 146 | 18 | 20 |
| HOLE | 147 | 32 | 20 |
| HOLE | 148 | 18 | 14 |
| HOLE | 149 | 36 | 28 |
| HOLE | 150 | 36 | 28 |
| HOLE | 151 | 40 | 30 |
| HOLE | 152 | 40 | 25 |
| HOLE | 153 | 23 | 20 |
| HOLE | 154 | 23 | 19 |
| HOLE | 155 | 27 | 19 |
| HOLE | 156 | 27 | 17 |
| HOLE | 157 | 40 | 27 |
| HOLE | 158 | 35 | 27 |
| HOLE | 159 | 40 | 30 |
| HOLE | 160 | 27 | 26 |
| HOLE | 161 | 40 | 29 |
| HOLE | 162 | 40 | 32 |
| HOLE | 163 | 18 | 19 |

# MITCHELL LINE 18

| LINE   | STATIONS |        |         |          |        |        |        |  |
|--------|----------|--------|---------|----------|--------|--------|--------|--|
| LOCN   | 939      | LXY    | 627922. | 991711.  |        |        |        |  |
| LOCN   | 1000     | LXY    | 628343. | 995347.  |        |        |        |  |
| LOCN   | 1011     | LXY    | 628440. | 995999.  |        |        |        |  |
| LOCN   | 1051     | LXY    | 628794. | 998372.  |        |        |        |  |
| LOCN   | 1092     | LXY    | 629146. | 1000806. |        |        |        |  |
| LOCN   | 1141     | LXY    | 629542. | 1003719. |        |        |        |  |
| LOCN   | 1151     | LXY    | 629614. | 1004314. |        |        |        |  |
| LOCN   | 1162     | LXY    | 629817. | 1004942. |        |        |        |  |
| LOCN   | 1219     | LXY    | 630262. | 1008332. |        |        |        |  |
| LOCN   | 1280     | LXY    | 630738. | 1011960. |        |        |        |  |
| LOCN   | 1329     | LXY    | 631111. | 1014876. |        |        |        |  |
| LOCN   | 1383     | LXY    | 631341. | 1018107. |        |        |        |  |
| LOCN   | 1463     | LXY    | 631676. | 1022894. |        |        |        |  |
| LOCN   | 1482     | LXY    | 631759. | 1024031. |        |        |        |  |
| LOCN   | 1529     | LXY    | 634162. | 1025504. |        |        |        |  |
| LOCN   | 1573     | LXY    | 636413. | 1026883. |        |        |        |  |
| LOCN   | 1578     | LXY    | 636546. | 1027152. |        |        |        |  |
| LOCN   | 1585     | LXY    | 636480. | 1027566. |        |        |        |  |
| LOCN   | 1635     | LXY    | 636397. | 1030565. |        |        |        |  |
| LOCN   | 1657     | LXY    | 636052. | 1031838. |        |        |        |  |
| LOCN   | 1663     | LXY    | 636133. | 1032189. |        |        |        |  |
| LOCN   | 1678     | LXY    | 636085. | 1033088. |        |        |        |  |
| LOCN   | 1687     | LXY    | 635815. | 1033556. |        |        |        |  |
| LOCN   | 1702     | LXY    | 636085. | 1034414. |        |        |        |  |
| LOCN   | 1708     | LXY    | 636268. | 1034724. |        |        |        |  |
| LOCN   | 1770     | LXY    | 636286. | 1038443. |        |        |        |  |
| LOCN   | 1821     | LXY    | 636292. | 1041503. |        |        |        |  |
| LOCN   | 1877     | LXY    | 636248. | 1044862. |        |        |        |  |
| LOCN   | 1915     | LXY    | 636253. | 1047141. |        |        |        |  |
| LOCN   | 1942     | LXY    | 635485. | 1048567. |        |        |        |  |
| LOCN   | 2014     | LXY    | 635453. | 1052886. |        |        |        |  |
| LOCN   | 2028     | LXY    | 635480. | 1053725. |        |        |        |  |
| LOCN   | 2032     | LXY    | 635587. | 1053940. |        |        |        |  |
| LOCN   | 2088     | LXY    | 635589. | 1057299. |        |        |        |  |
| ELEV   | 939      |        |         |          |        |        |        |  |
| 286.80 |          |        |         |          |        |        |        |  |
| ELEV   | 940      |        |         |          |        |        |        |  |
| 286.80 | 286.97   | 287.24 | 287.39  | 288.10   | 288.00 | 288.09 | 288.28 |  |
| 288.03 | 288.47   | 288.66 | 288.72  | 289.04   | 289.56 | 289.99 | 290.98 |  |
| 291.16 | 291.09   | 291.09 | 291.53  | 291.55   | 291.71 | 292.04 | 292.38 |  |
| 292.38 | 292.54   | 292.75 | 293.16  | 293.12   | 293.62 | 293.81 | 294.61 |  |
| 294.95 | 295.78   | 296.10 | 297.22  | 297.72   | 297.86 | 298.32 | 298.77 |  |
| 299.32 | 299.63   | 299.98 | 300.31  | 300.27   | 300.81 | 300.81 | 301.46 |  |
| 301.27 | 301.95   | 302.22 | 302.76  | 302.87   | 303.06 | 303.28 | 303.16 |  |
| 302.77 | 301.96   | 301.52 | 300.63  | 299.68   | 299.17 | 299.09 | 299.39 |  |
| 299.75 | 299.62   | 299.49 | 300.24  | 300.94   | 301.37 | 301.60 | 301.61 |  |
| 301.95 | 302.44   | 303.51 | 303.11  | 307.65   | 307.78 | 308.20 | 308.84 |  |
| 309.90 | 310.86   | 311.36 | 311.57  | 312.16   | 312.55 | 312.66 | 312.96 |  |
| 312.71 | 312.33   | 312.57 | 313.10  | 313.77   | 314.58 | 315.56 | 316.54 |  |
| 317.91 | 319.04   | 320.06 | 321.05  | 321.91   | 322.52 | 323.19 | 323.92 |  |
| 324.70 | 325.25   | 325.93 | 326.60  | 327.10   | 327.54 | 328.10 | 328.90 |  |
| 329.31 | 329.14   | 328.61 | 327.36  | 326.13   | 324.96 | 324.20 | 323.83 |  |

|        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|
| 323.64 | 323.54 | 323.59 | 323.77 | 324.37 | 325.02 | 325.75 | 326.71 |
| 327.51 | 328.10 | 328.14 | 327.66 | 326.93 | 326.49 | 326.06 | 325.99 |
| 325.94 | 326.30 | 325.92 | 326.74 | 327.51 | 328.59 | 329.86 | 330.93 |
| 331.98 | 333.18 | 333.90 | 335.16 | 336.27 | 336.97 | 337.59 | 338.02 |
| 338.07 | 337.65 | 337.04 | 336.25 | 335.20 | 333.91 | 332.50 | 330.96 |
| 329.50 | 328.04 | 327.09 | 326.42 | 326.29 | 326.18 | 325.78 | 325.70 |
| 325.31 | 325.72 | 325.84 | 326.15 | 326.50 | 327.01 | 327.64 | 328.23 |
| 329.05 | 329.66 | 329.89 | 329.87 | 329.65 | 329.18 | 329.11 | 328.79 |
| 329.01 | 328.34 | 327.65 | 327.10 | 326.43 | 326.30 | 326.28 | 326.49 |
| 326.32 | 326.11 | 326.21 | 327.05 | 327.68 | 328.60 | 329.27 | 329.95 |
| 330.98 | 331.62 | 332.10 | 332.93 | 333.39 | 333.79 | 333.71 | 333.46 |
| 333.15 | 333.76 | 333.19 | 333.68 | 333.95 | 334.32 | 334.52 | 334.84 |
| 335.25 | 335.75 | 335.75 | 336.56 | 336.85 | 337.66 | 338.63 | 339.70 |
| 340.79 | 341.48 | 342.51 | 343.44 | 343.58 | 345.73 | 346.64 | 347.43 |
| 348.31 | 349.10 | 349.91 | 350.71 | 351.29 | 351.71 | 351.92 | 352.10 |
| 352.34 | 352.46 | 352.70 | 352.56 | 352.72 | 352.75 | 353.02 | 353.05 |
| 353.11 | 353.40 | 353.14 | 353.07 | 352.61 | 352.53 | 352.48 | 352.18 |
| 351.18 | 350.12 | 349.25 | 348.85 | 348.73 | 348.50 | 348.24 | 347.95 |
| 347.60 | 347.61 | 347.04 | 346.72 | 346.68 | 346.57 | 346.47 | 346.25 |
| 345.94 | 345.91 | 345.34 | 344.89 | 344.32 | 344.02 | 344.02 | 344.04 |
| 343.42 | 343.00 | 342.39 | 342.26 | 343.14 | 343.45 | 344.13 | 343.80 |
| 343.93 | 344.37 | 344.67 | 345.16 | 345.14 | 345.41 | 345.60 | 345.78 |
| 345.73 | 345.65 | 345.28 | 344.65 | 344.16 | 343.52 | 342.85 | 342.50 |
| 342.06 | 341.54 | 341.15 | 340.66 | 340.25 | 340.04 | 339.67 | 339.41 |
| 339.06 | 338.60 | 337.89 | 339.34 | 340.39 | 340.81 | 340.86 | 340.84 |
| 340.70 | 341.47 | 342.05 | 342.96 | 343.65 | 344.29 | 344.88 | 345.05 |
| 344.87 | 345.85 | 345.50 | 345.89 | 346.94 | 347.81 | 347.46 | 347.26 |
| 347.11 | 347.20 | 347.42 | 348.26 | 349.16 | 348.45 | 347.57 | 346.03 |
| 345.08 | 344.16 | 343.85 | 343.46 | 343.21 | 343.20 | 343.29 | 343.12 |
| 342.78 | 342.39 | 342.04 | 341.47 | 340.92 | 340.55 | 340.16 | 339.55 |
| 339.39 | 339.11 | 339.00 | 338.78 | 338.56 | 338.06 | 337.46 | 336.70 |
| 337.94 | 338.39 | 338.93 | 339.41 | 339.89 | 340.32 | 340.89 | 341.32 |
| 341.82 | 342.53 | 343.08 | 343.72 | 344.07 | 344.40 | 344.91 | 345.51 |
| 346.37 | 347.17 | 347.66 | 348.87 | 350.19 | 352.21 | 354.02 | 355.72 |
| 356.98 | 357.79 | 358.47 | 358.86 | 358.47 | 358.09 | 357.21 | 356.28 |
| 354.94 | 353.48 | 352.26 | 350.78 | 349.43 | 348.08 | 346.67 | 345.50 |
| 344.43 | 343.09 | 341.84 | 340.84 | 339.81 | 339.05 | 338.35 | 337.80 |
| 337.04 | 336.25 | 335.29 | 334.67 | 333.83 | 332.52 | 331.39 | 330.36 |
| 330.10 | 330.49 | 331.85 | 332.77 | 333.12 | 333.27 | 333.52 | 333.49 |
| 333.44 | 332.54 | 332.82 | 333.79 | 334.76 | 335.62 | 336.37 | 336.07 |
| 336.43 | 337.04 | 337.07 | 337.18 | 334.85 | 334.77 | 335.07 | 335.27 |
| 334.74 | 333.65 | 332.42 | 331.15 | 330.03 | 328.54 | 327.10 | 326.42 |
| 326.62 | 327.51 | 328.61 | 329.98 | 330.38 | 329.50 | 330.85 | 333.59 |
| 333.96 | 334.82 | 335.97 | 338.17 | 341.37 | 345.52 | 348.96 | 350.79 |
| 355.94 | 358.84 | 356.45 | 352.74 | 349.86 | 350.88 | 347.18 | 345.00 |
| 342.80 | 340.74 | 339.93 | 338.77 | 337.69 | 336.86 | 336.59 | 336.57 |
| 335.57 | 334.83 | 334.10 | 333.72 | 333.08 | 332.11 | 330.99 | 330.01 |
| 329.51 | 328.61 | 327.26 | 325.99 | 324.77 | 323.71 | 323.00 | 322.41 |
| 322.07 | 321.58 | 321.20 | 320.56 | 319.83 | 318.99 | 319.18 | 318.69 |
| 318.51 | 318.19 | 317.97 | 317.50 | 317.05 | 316.74 | 316.57 | 315.99 |
| 315.63 | 315.14 | 314.78 | 314.02 | 312.56 | 311.78 | 312.20 | 311.89 |
| 312.10 | 312.14 | 311.89 | 311.56 | 311.65 | 312.38 | 312.13 | 312.32 |
| 313.29 | 313.92 | 314.48 | 314.75 | 315.26 | 315.66 | 316.30 | 316.56 |
| 317.50 | 318.42 | 319.11 | 318.46 | 316.67 | 315.02 | 314.20 | 314.40 |
| 314.54 | 314.74 | 314.86 | 315.12 | 315.07 | 314.94 | 314.68 | 314.74 |

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|--------|--------|--------|--------|--------|--------|--------|--------|
| 314.65 | 314.73 | 314.59 | 314.52 | 314.47 | 315.14 | 315.57 | 316.08 |
| 316.42 | 316.83 | 316.74 | 316.51 | 315.96 | 315.39 | 314.69 | 314.18 |
| 313.14 | 312.23 | 311.98 | 311.76 | 311.67 | 311.48 | 311.36 | 311.12 |
| 310.60 | 310.01 | 309.87 | 309.57 | 309.64 | 309.41 | 308.58 | 308.25 |
| 307.90 | 309.52 | 309.59 | 309.58 | 309.39 | 309.59 | 309.57 | 309.50 |
| 309.50 | 310.49 | 311.56 | 312.73 | 312.26 | 312.61 | 312.93 | 313.15 |
| 313.72 | 314.26 | 314.63 | 315.27 | 315.84 | 316.43 | 316.91 | 317.43 |
| 318.01 | 318.88 | 319.70 | 320.64 | 321.41 | 321.86 | 322.47 | 323.13 |
| 323.95 | 325.86 | 327.31 | 327.78 | 328.81 | 330.72 | 332.65 | 335.07 |
| 337.75 | 339.08 | 335.74 | 333.71 | 332.08 | 329.93 | 328.17 | 327.17 |
| 326.82 | 327.69 | 328.66 | 329.98 | 331.18 | 332.03 | 332.08 | 331.74 |
| 330.48 | 329.02 | 327.50 | 326.89 | 327.24 | 327.51 | 328.59 | 330.91 |
| 331.29 | 330.85 | 330.43 | 329.06 | 328.23 | 327.78 | 327.57 | 327.89 |
| 328.63 | 328.94 | 329.15 | 328.74 | 328.08 | 327.35 | 326.96 | 326.63 |
| 326.43 | 325.88 | 325.12 | 324.24 | 323.87 | 324.01 | 324.27 | 324.41 |
| 324.21 | 323.85 | 323.61 | 323.17 | 321.97 | 321.48 | 322.16 | 322.69 |
| 323.51 | 324.56 | 326.10 | 327.48 | 328.73 | 329.34 | 329.59 | 329.85 |
| 329.85 | 329.31 | 328.30 | 326.95 | 325.82 | 324.52 | 323.61 | 322.65 |
| 322.20 | 322.06 | 322.47 | 322.99 | 323.71 | 322.68 | 322.57 | 321.54 |
| 321.42 | 321.13 | 321.03 | 320.43 | 319.76 | 318.86 | 318.10 | 316.52 |
| 315.39 | 315.97 | 315.20 | 317.74 | 318.02 | 318.21 | 318.46 | 318.76 |
| 319.49 | 320.65 | 321.04 | 321.90 | 322.62 | 323.80 | 324.73 | 325.98 |
| 327.91 | 329.41 | 332.15 | 332.84 | 333.57 | 334.50 | 336.01 | 337.22 |
| 338.10 | 339.40 | 340.40 | 341.09 | 341.94 | 342.89 | 343.07 | 342.76 |
| 342.40 | 342.68 | 342.65 | 343.43 | 344.98 | 346.56 | 347.64 | 348.27 |
| 347.75 | 346.90 | 346.81 | 346.51 | 346.70 | 346.72 | 346.82 | 346.88 |
| 347.08 | 345.88 | 345.03 | 345.32 | 345.77 | 346.23 | 346.53 | 345.76 |
| 345.20 | 344.74 | 344.63 | 343.95 | 342.73 | 341.71 | 341.36 | 341.00 |
| 340.95 | 340.24 | 338.95 | 338.01 | 336.96 | 336.57 | 335.82 | 335.57 |
| 335.27 | 337.21 | 336.97 | 336.90 | 336.38 | 335.76 | 335.16 | 335.22 |
| 335.16 | 335.09 | 334.89 | 334.40 | 333.36 | 332.16 | 330.99 | 330.90 |
| 330.66 | 330.05 | 329.67 | 329.53 | 330.50 | 330.71 | 330.95 | 331.51 |
| 332.33 | 333.23 | 334.07 | 334.73 | 335.53 | 336.27 | 337.17 | 338.33 |
| 339.61 | 341.00 | 340.87 | 341.52 | 342.92 | 345.39 | 346.51 | 345.54 |
| 345.77 | 346.24 | 347.64 | 348.44 | 347.29 | 346.19 | 346.91 | 347.52 |
| 348.29 | 349.32 | 351.52 | 352.27 | 351.17 | 351.82 | 352.99 | 351.23 |
| 349.35 | 347.35 | 346.28 | 345.58 | 345.53 | 346.21 | 347.20 | 348.75 |
| 350.27 | 351.71 | 352.56 | 350.85 | 349.78 | 350.07 | 351.89 | 351.98 |
| 351.45 | 350.86 | 350.26 | 350.09 | 349.85 | 349.76 | 349.29 | 348.75 |
| 348.46 | 348.46 | 348.39 | 348.32 | 348.36 | 348.35 | 348.11 | 347.86 |
| 347.53 | 347.32 | 346.52 | 345.74 | 344.78 | 343.92 | 343.45 | 343.83 |
| 344.38 | 344.53 | 344.32 | 343.50 | 342.19 | 340.68 | 339.76 | 339.07 |
| 338.81 | 338.41 | 338.41 | 338.30 | 338.14 | 338.09 | 337.97 | 337.35 |
| 337.27 | 336.67 | 336.90 | 337.70 | 337.75 | 337.74 | 337.75 | 337.44 |
| 336.73 | 336.56 | 337.06 | 337.66 | 338.05 | 338.66 | 339.07 | 339.99 |
| 340.57 | 341.48 | 342.40 | 344.27 | 345.61 | 345.82 | 347.42 | 350.01 |
| 351.37 | 351.36 | 351.37 | 351.77 | 352.78 | 354.53 | 356.21 | 358.43 |
| 361.46 | 363.34 | 363.61 | 362.07 | 360.55 | 359.39 | 359.13 | 358.52 |
| 358.04 | 357.87 | 357.53 | 356.97 | 356.43 | 355.90 | 354.91 | 353.76 |
| 352.91 | 352.05 | 351.28 | 350.47 | 349.65 | 348.06 | 347.40 | 347.14 |
| 346.92 | 346.77 | 346.45 | 346.43 | 345.95 | 346.09 | 346.30 | 348.06 |
| 348.88 | 349.09 | 348.89 | 348.62 | 348.41 | 348.59 | 348.59 | 348.68 |
| 349.26 | 349.87 | 350.24 | 350.19 | 350.30 | 349.99 | 349.76 | 349.09 |
| 349.75 | 350.16 | 350.92 | 352.01 | 353.25 | 353.83 | 353.74 | 353.05 |
| 352.14 | 351.71 | 352.05 | 352.33 | 352.72 | 353.53 | 354.54 | 355.41 |

|         |        |        |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|--------|--------|
| 356.50  | 357.43 | 357.68 | 357.31 | 356.93 | 355.53 | 354.59 | 353.00 |
| 351.51  | 350.54 | 349.95 | 350.58 | 350.52 | 350.40 | 350.45 | 350.46 |
| 350.57  | 350.67 | 350.99 | 351.64 | 352.21 | 352.37 | 352.17 | 352.03 |
| 351.97  | 351.89 | 351.83 | 351.76 | 351.73 | 351.51 | 351.25 | 351.15 |
| 351.28  | 351.47 | 351.92 | 352.54 | 353.58 | 355.01 | 356.56 | 356.56 |
| 356.02  | 355.35 | 355.00 | 354.37 | 353.68 | 352.99 | 352.54 | 352.05 |
| 351.42  | 350.69 | 349.67 | 349.03 | 348.86 | 348.70 | 348.44 | 348.20 |
| 347.82  | 347.80 | 347.48 | 346.70 | 345.80 | 346.60 | 347.57 | 349.83 |
| 350.92  | 351.08 | 352.14 | 353.18 | 353.48 | 354.18 | 356.13 | 358.76 |
| 360.43  | 361.65 | 362.70 | 362.35 | 362.93 | 364.22 | 367.13 | 369.34 |
| 368.44  | 366.45 | 365.53 | 365.60 | 366.31 | 366.83 | 367.06 | 366.51 |
| 365.64  | 364.63 | 363.54 | 363.30 | 362.32 | 360.67 | 361.96 | 362.61 |
| 363.56  | 363.90 | 363.88 | 363.63 | 363.65 | 363.57 | 363.30 | 362.98 |
| 362.94  | 362.61 | 362.02 | 361.11 | 360.31 | 359.37 | 358.03 | 357.18 |
| 356.29  | 355.08 | 354.18 | 353.40 | 352.63 | 352.03 | 351.45 | 351.06 |
| 350.69  | 350.45 | 350.64 | 350.60 | 350.34 | 350.23 | 350.20 | 348.40 |
| 351.63  | 352.69 | 353.98 | 355.29 | 356.49 | 357.80 | 359.32 | 360.72 |
| 362.10  | 363.32 | 364.80 | 366.54 | 368.36 | 369.76 | 369.73 | 368.22 |
| 366.69  | 366.80 | 363.31 | 361.89 | 361.55 |        |        |        |
| PATTERN | 1      | YES    |        |        |        |        |        |
| PSTAT   | 1000   |        |        |        |        |        |        |
| 1       | 1000   |        |        |        |        |        |        |
| 96      | 1095   |        |        |        |        |        |        |
| SOURCE  | 1      | 96     | IN-PER |        |        |        |        |
| SHOT    | 1      | 940    |        | 1      |        | 940    |        |
| SHOT    | 2      | 946    |        | 1      |        | 940    |        |
| SHOT    | 3      | 952    |        | 1      |        | 940    |        |
| SHOT    | 4      | 958    |        | 1      |        | 940    |        |
| SHOT    | 5      | 964    |        | 1      |        | 940    |        |
| SHOT    | 6      | 970    |        | 1      |        | 940    |        |
| SHOT    | 7      | 976    |        | 1      |        | 940    |        |
| SHOT    | 8      | 982    |        | 1      |        | 946    |        |
| SHOT    | 9      | 988    |        | 1      |        | 952    |        |
| SHOT    | 10     | 994    |        | 1      |        | 958    |        |
| SHOT    | 11     | 1000   |        | 1      |        | 964    |        |
| SHOT    | 12     | 1006   |        | 1      |        | 970    |        |
| SHOT    | 13     | 1012   |        | 1      |        | 976    |        |
| SHOT    | 14     | 1018   |        | 1      |        | 982    |        |
| SHOT    | 15     | 1024   |        | 1      |        | 988    |        |
| SHOT    | 16     | 1030   |        | 1      |        | 994    |        |
| SHOT    | 17     | 1036   |        | 1      |        | 1000   |        |
| SHOT    | 18     | 1042   |        | 1      |        | 1006   |        |
| SHOT    | 19     | 1048   |        | 1      |        | 1012   |        |
| SHOT    | 20     | 1054   |        | 1      |        | 1018   |        |
| SHOT    | 21     | 1060   |        | 1      |        | 1024   |        |
| SHOT    | 22     | 1066   |        | 1      |        | 1030   |        |
| SHOT    | 23     | 1072   |        | 1      |        | 1036   |        |
| SHOT    | 24     | 1078   |        | 1      |        | 1042   |        |
| SHOT    | 25     | 1084   |        | 1      |        | 1048   |        |
| SHOT    | 26     | 1090   |        | 1      |        | 1054   |        |
| SHOT    | 27     | 1096   |        | 1      |        | 1060   |        |
| SHOT    | 28     | 1102   |        | 1      |        | 1066   |        |
| SHOT    | 29     | 1108   |        | 1      |        | 1072   |        |
| SHOT    | 30     | 1114   |        | 1      |        | 1078   |        |
| SHOT    | 31     | 1120   |        | 1      |        | 1084   |        |

|      |    |      |    |   |      |
|------|----|------|----|---|------|
| SHOT | 32 | 1126 |    | 1 | 1090 |
| SHOT | 33 | 1132 |    | 1 | 1096 |
| SHOT | 34 | 1138 |    | 1 | 1102 |
| SHOT | 35 | 1144 |    | 1 | 1108 |
| SHOT | 36 | 1150 |    | 1 | 1114 |
| SHOT | 37 | 1156 |    | 1 | 1120 |
| SHOT | 38 | 1162 |    | 1 | 1126 |
| SHOT | 39 | 1168 |    | 1 | 1132 |
| SHOT | 40 | 1174 |    | 1 | 1138 |
| SHOT | 41 | 1180 |    | 1 | 1144 |
| SHOT | 42 | 1186 |    | 1 | 1150 |
| SHOT | 43 | 1192 | 15 | 1 | 1156 |
| SHOT | 44 | 1198 |    | 1 | 1162 |
| SHOT | 45 | 1203 |    | 1 | 1168 |
| SHOT | 46 | 1216 |    | 1 | 1180 |
| SHOT | 47 | 1222 |    | 1 | 1186 |
| SHOT | 48 | 1227 |    | 1 | 1189 |
| SHOT | 49 | 1228 |    | 1 | 1192 |
| SHOT | 50 | 1231 |    | 1 | 1195 |
| SHOT | 51 | 1234 |    | 1 | 1198 |
| SHOT | 52 | 1237 |    | 1 | 1201 |
| SHOT | 53 | 1240 |    | 1 | 1204 |
| SHOT | 54 | 1243 |    | 1 | 1207 |
| SHOT | 55 | 1246 |    | 1 | 1210 |
| SHOT | 56 | 1249 |    | 1 | 1213 |
| SHOT | 57 | 1252 |    | 1 | 1216 |
| SHOT | 58 | 1255 |    | 1 | 1219 |
| SHOT | 59 | 1258 |    | 1 | 1222 |
| SHOT | 60 | 1261 |    | 1 | 1225 |
| SHOT | 61 | 1264 |    | 1 | 1228 |
| SHOT | 62 | 1267 |    | 1 | 1231 |
| SHOT | 63 | 1270 |    | 1 | 1234 |
| SHOT | 64 | 1330 | 22 | 1 | 1236 |
| SHOT | 65 | 1273 |    | 1 | 1237 |
| SHOT | 66 | 1276 |    | 1 | 1240 |
| SHOT | 67 | 1279 |    | 1 | 1243 |
| SHOT | 68 | 1282 |    | 1 | 1246 |
| SHOT | 69 | 1285 |    | 1 | 1248 |
| SHOT | 70 | 1288 |    | 1 | 1248 |
| SHOT | 71 | 1291 |    | 1 | 1248 |
| SHOT | 72 | 1294 |    | 1 | 1248 |
| SHOT | 73 | 1297 |    | 1 | 1248 |
| SHOT | 74 | 1300 |    | 1 | 1248 |
| SHOT | 75 | 1303 |    | 1 | 1248 |
| SHOT | 76 | 1306 |    | 1 | 1248 |
| SHOT | 77 | 1309 |    | 1 | 1260 |
| SHOT | 78 | 1312 |    | 1 | 1260 |
| SHOT | 79 | 1315 |    | 1 | 1260 |
| SHOT | 80 | 1318 |    | 1 | 1260 |
| SHOT | 81 | 1321 |    | 1 | 1285 |
| SHOT | 82 | 1324 |    | 1 | 1288 |
| SHOT | 83 | 1327 |    | 1 | 1291 |
| SHOT | 84 | 1330 |    | 1 | 1294 |
| SHOT | 85 | 1333 |    | 1 | 1298 |
| SHOT | 86 | 1336 |    | 1 | 1300 |

|      |     |      |    |   |      |
|------|-----|------|----|---|------|
| SHOT | 87  | 1339 |    | 1 | 1303 |
| SHOT | 88  | 1342 |    | 1 | 1306 |
| SHOT | 89  | 1345 |    | 1 | 1309 |
| SHOT | 90  | 1348 |    | 1 | 1312 |
| SHOT | 91  | 1351 |    | 1 | 1315 |
| SHOT | 92  | 1354 |    | 1 | 1318 |
| SHOT | 93  | 1357 |    | 1 | 1321 |
| SHOT | 94  | 1330 | 30 | 1 | 1330 |
| SHOT | 95  | 1360 |    | 1 | 1324 |
| SHOT | 96  | 1363 |    | 1 | 1327 |
| SHOT | 97  | 1366 |    | 1 | 1330 |
| SHOT | 98  | 1369 |    | 1 | 1333 |
| SHOT | 99  | 1372 |    | 1 | 1336 |
| SHOT | 100 | 1375 |    | 1 | 1339 |
| SHOT | 101 | 1378 |    | 1 | 1342 |
| SHOT | 102 | 1381 |    | 1 | 1345 |
| SHOT | 103 | 1384 |    | 1 | 1348 |
| SHOT | 104 | 1387 |    | 1 | 1351 |
| SHOT | 105 | 1390 |    | 1 | 1354 |
| SHOT | 106 | 1393 |    | 1 | 1357 |
| SHOT | 107 | 1396 |    | 1 | 1360 |
| SHOT | 108 | 1399 |    | 1 | 1363 |
| SHOT | 109 | 1402 |    | 1 | 1366 |
| SHOT | 110 | 1405 |    | 1 | 1369 |
| SHOT | 111 | 1408 |    | 1 | 1372 |
| SHOT | 112 | 1411 |    | 1 | 1375 |
| SHOT | 113 | 1418 |    | 1 | 1378 |
| SHOT | 114 | 1420 |    | 1 | 1381 |
| SHOT | 115 | 1420 | 6  | 1 | 1384 |
| SHOT | 116 | 1426 |    | 1 | 1390 |
| SHOT | 117 | 1432 |    | 1 | 1397 |
| SHOT | 118 | 1438 |    | 1 | 1402 |
| SHOT | 119 | 1444 |    | 1 | 1408 |
| SHOT | 120 | 1450 |    | 1 | 1414 |
| SHOT | 121 | 1456 |    | 1 | 1420 |
| SHOT | 122 | 1462 |    | 1 | 1426 |
| SHOT | 123 | 1465 |    | 1 | 1429 |
| SHOT | 124 | 1468 |    | 1 | 1432 |
| SHOT | 125 | 1471 |    | 1 | 1435 |
| SHOT | 126 | 1474 |    | 1 | 1441 |
| SHOT | 127 | 1480 |    | 1 | 1444 |
| SHOT | 128 | 1483 |    | 1 | 1447 |
| SHOT | 129 | 1486 |    | 1 | 1450 |
| SHOT | 130 | 1489 |    | 1 | 1453 |
| SHOT | 131 | 1495 |    | 1 | 1459 |
| SHOT | 132 | 1504 |    | 1 | 1468 |
| SHOT | 133 | 1510 |    | 1 | 1474 |
| SHOT | 134 | 1516 |    | 1 | 1480 |
| SHOT | 135 | 1522 |    | 1 | 1486 |
| SHOT | 136 | 1528 |    | 1 | 1492 |
| SHOT | 137 | 1534 |    | 1 | 1498 |
| SHOT | 138 | 1539 |    | 1 | 1504 |
| SHOT | 139 | 1546 |    | 1 | 1510 |
| SHOT | 140 | 1552 |    | 1 | 1516 |
| SHOT | 141 | 1558 |    | 1 | 1522 |

|      |     |      |    |      |
|------|-----|------|----|------|
| SHOT | 142 | 1561 | 1  | 1525 |
| SHOT | 143 | 1564 | 1  | 1528 |
| SHOT | 144 | 1567 | 1  | 1531 |
| SHOT | 145 | 1570 | 1  | 1534 |
| SHOT | 146 | 1573 | 1  | 1537 |
| SHOT | 147 | 1576 | 1  | 1540 |
| SHOT | 148 | 1579 | 1  | 1543 |
| SHOT | 149 | 1582 | 1  | 1546 |
| SHOT | 150 | 1585 | 1  | 1549 |
| SHOT | 151 | 1591 | 1  | 1555 |
| SHOT | 152 | 1594 | 1  | 1558 |
| SHOT | 153 | 1600 | 1  | 1564 |
| SHOT | 154 | 1606 | 1  | 1570 |
| SHOT | 155 | 1624 | 1  | 1588 |
| SHOT | 156 | 1648 | 1  | 1612 |
| SHOT | 157 | 1661 | 1  | 1624 |
| SHOT | 158 | 1678 | 1  | 1642 |
| SHOT | 159 | 1684 | 1  | 1648 |
| SHOT | 160 | 1690 | 1  | 1654 |
| SHOT | 161 | 1702 | 1  | 1666 |
| SHOT | 162 | 1708 | 12 | 1672 |
| SHOT | 163 | 1714 | 1  | 1678 |
| SHOT | 164 | 1750 | 1  | 1708 |
| SHOT | 165 | 1756 | 1  | 1708 |
| SHOT | 166 | 1762 | 1  | 1708 |
| SHOT | 167 | 1768 | 1  | 1734 |
| SHOT | 168 | 1774 | 1  | 1738 |
| SHOT | 169 | 1780 | 1  | 1744 |
| SHOT | 170 | 1786 | 1  | 1750 |
| SHOT | 171 | 1792 | 1  | 1756 |
| SHOT | 172 | 1816 | 1  | 1764 |
| SHOT | 173 | 1822 | 1  | 1764 |
| SHOT | 174 | 1828 | 7  | 1792 |
| SHOT | 175 | 1834 | 1  | 1798 |
| SHOT | 176 | 1840 | 1  | 1804 |
| SHOT | 177 | 1846 | 1  | 1810 |
| SHOT | 178 | 1858 | 1  | 1822 |
| SHOT | 179 | 1864 | 1  | 1828 |
| SHOT | 180 | 1870 | 1  | 1834 |
| SHOT | 181 | 1876 | 1  | 1840 |
| SHOT | 182 | 1882 | 1  | 1846 |
| SHOT | 183 | 1888 | 1  | 1852 |
| SHOT | 184 | 1894 | 1  | 1858 |
| SHOT | 185 | 1912 | 1  | 1876 |
| SHOT | 186 | 1930 | 1  | 1890 |
| SHOT | 187 | 1936 | 1  | 1900 |
| SHOT | 188 | 1942 | 1  | 1906 |
| SHOT | 189 | 1948 | 1  | 1912 |
| SHOT | 190 | 1954 | 1  | 1918 |
| SHOT | 191 | 1966 | 1  | 1930 |
| SHOT | 192 | 1972 | 1  | 1936 |
| SHOT | 193 | 1978 | 1  | 1936 |
| SHOT | 194 | 1990 | 1  | 1954 |
| SHOT | 195 | 2014 | 1  | 1966 |
| SHOT | 196 | 2020 | 1  | 1966 |

|      |     |      |    |   |      |
|------|-----|------|----|---|------|
| SHOT | 197 | 2026 |    | 1 | 1966 |
| SHOT | 198 | 2032 |    | 1 | 1993 |
| SHOT | 199 | 2038 |    | 1 | 1993 |
| SHOT | 200 | 2044 |    | 1 | 1993 |
| SHOT | 201 | 2050 |    | 1 | 1993 |
| SHOT | 202 | 2056 |    | 1 | 1993 |
| SHOT | 203 | 2062 |    | 1 | 1993 |
| SHOT | 204 | 2068 |    | 1 | 1993 |
| SHOT | 205 | 2080 |    | 1 | 1993 |
| SHOT | 206 | 2086 |    | 1 | 1993 |
| SHOT | 207 | 2088 |    | 1 | 1993 |
| HOLE | 1   | 40   | 48 |   |      |
| HOLE | 2   | 40   | 38 |   |      |
| HOLE | 3   | 20   | 15 |   |      |
| HOLE | 4   | 40   | 35 |   |      |
| HOLE | 5   | 40   | 37 |   |      |
| HOLE | 6   | 40   | 35 |   |      |
| HOLE | 7   | 40   | 40 |   |      |
| HOLE | 8   | 40   | 38 |   |      |
| HOLE | 9   | 40   | 39 |   |      |
| HOLE | 10  | 40   | 39 |   |      |
| HOLE | 11  | 40   | 39 |   |      |
| HOLE | 12  | 32   | 29 |   |      |
| HOLE | 13  | 40   | 35 |   |      |
| HOLE | 14  | 40   | 30 |   |      |
| HOLE | 15  | 40   | 40 |   |      |
| HOLE | 16  | 40   | 35 |   |      |
| HOLE | 17  | 40   | 36 |   |      |
| HOLE | 18  | 40   | 39 |   |      |
| HOLE | 19  | 40   | 38 |   |      |
| HOLE | 20  | 40   | 31 |   |      |
| HOLE | 21  | 38   | 38 |   |      |
| HOLE | 22  | 40   | 32 |   |      |
| HOLE | 23  | 40   | 35 |   |      |
| HOLE | 24  | 40   | 41 |   |      |
| HOLE | 25  | 40   | 40 |   |      |
| HOLE | 26  | 40   | 35 |   |      |
| HOLE | 27  | 40   | 33 |   |      |
| HOLE | 28  | 40   | 37 |   |      |
| HOLE | 29  | 40   | 34 |   |      |
| HOLE | 30  | 40   | 39 |   |      |
| HOLE | 31  | 40   | 40 |   |      |
| HOLE | 32  | 40   | 32 |   |      |
| HOLE | 33  | 40   | 32 |   |      |
| HOLE | 34  | 40   | 41 |   |      |
| HOLE | 35  | 40   | 35 |   |      |
| HOLE | 36  | 40   | 40 |   |      |
| HOLE | 37  | 30   | 29 |   |      |
| HOLE | 38  | 40   | 37 |   |      |
| HOLE | 39  | 40   | 41 |   |      |
| HOLE | 40  | 40   | 39 |   |      |
| HOLE | 41  | 40   | 34 |   |      |
| HOLE | 42  | 40   | 40 |   |      |
| HOLE | 43  | 40   | 43 |   |      |
| HOLE | 44  | 40   | 46 |   |      |

|      |    |    |    |
|------|----|----|----|
| HOLE | 45 | 40 | 46 |
| HOLE | 46 | 36 | 39 |
| HOLE | 47 | 40 | 42 |
| HOLE | 48 | 40 | 39 |
| HOLE | 49 | 40 | 41 |
| HOLE | 50 | 40 | 39 |
| HOLE | 51 | 40 | 39 |
| HOLE | 52 | 40 | 35 |
| HOLE | 53 | 40 | 38 |
| HOLE | 54 | 40 | 39 |
| HOLE | 55 | 40 | 43 |
| HOLE | 56 | 40 | 45 |
| HOLE | 57 | 40 | 45 |
| HOLE | 58 | 40 | 38 |
| HOLE | 59 | 40 | 42 |
| HOLE | 60 | 40 | 38 |
| HOLE | 61 | 40 | 40 |
| HOLE | 62 | 40 | 40 |
| HOLE | 63 | 40 | 36 |
| HOLE | 64 | 40 | 32 |
| HOLE | 65 | 40 | 33 |
| HOLE | 66 | 40 | 36 |
| HOLE | 67 | 40 | 37 |
| HOLE | 68 | 40 | 37 |
| HOLE | 69 | 40 | 28 |
| HOLE | 70 | 40 | 34 |
| HOLE | 71 | 40 | 37 |
| HOLE | 72 | 40 | 42 |
| HOLE | 73 | 40 | 39 |
| HOLE | 74 | 40 | 39 |
| HOLE | 75 | 40 | 36 |
| HOLE | 76 | 30 | 21 |
| HOLE | 77 | 40 | 38 |
| HOLE | 78 | 35 | 31 |
| HOLE | 79 | 40 | 50 |
| HOLE | 80 | 40 | 47 |
| HOLE | 81 | 40 | 37 |
| HOLE | 82 | 40 | 42 |
| HOLE | 83 | 40 | 32 |
| HOLE | 84 | 40 | 32 |
| HOLE | 85 | 40 | 33 |
| HOLE | 86 | 40 | 37 |
| HOLE | 87 | 40 | 37 |
| HOLE | 88 | 40 | 41 |
| HOLE | 89 | 40 | 34 |
| HOLE | 90 | 30 | 30 |
| HOLE | 91 | 40 | 40 |
| HOLE | 92 | 40 | 51 |
| HOLE | 93 | 40 | 40 |
| HOLE | 94 | 40 | 32 |
| HOLE | 95 | 40 | 40 |
| HOLE | 96 | 40 | 40 |
| HOLE | 97 | 40 | 43 |
| HOLE | 98 | 40 | 43 |
| HOLE | 99 | 18 | 28 |

|      |     |    |    |
|------|-----|----|----|
| HOLE | 100 | 40 | 40 |
| HOLE | 101 | 40 | 42 |
| HOLE | 102 | 40 | 44 |
| HOLE | 103 | 40 | 48 |
| HOLE | 104 | 40 | 44 |
| HOLE | 105 | 40 | 49 |
| HOLE | 106 | 40 | 47 |
| HOLE | 107 | 40 | 39 |
| HOLE | 108 | 40 | 44 |
| HOLE | 109 | 40 | 43 |
| HOLE | 110 | 40 | 42 |
| HOLE | 111 | 40 | 45 |
| HOLE | 112 | 40 | 49 |
| HOLE | 113 | 40 | 47 |
| HOLE | 114 | 40 | 45 |
| HOLE | 115 | 40 | 45 |
| HOLE | 116 | 40 | 35 |
| HOLE | 117 | 40 | 35 |
| HOLE | 118 | 40 | 36 |
| HOLE | 119 | 40 | 37 |
| HOLE | 120 | 40 | 35 |
| HOLE | 121 | 40 | 37 |
| HOLE | 122 | 40 | 38 |
| HOLE | 123 | 40 | 30 |
| HOLE | 124 | 40 | 34 |
| HOLE | 125 | 40 | 31 |
| HOLE | 126 | 40 | 30 |
| HOLE | 127 | 40 | 37 |
| HOLE | 128 | 40 | 33 |
| HOLE | 129 | 27 | 24 |
| HOLE | 130 | 40 | 37 |
| HOLE | 131 | 40 | 33 |
| HOLE | 132 | 40 | 35 |
| HOLE | 133 | 40 | 35 |
| HOLE | 134 | 40 | 35 |
| HOLE | 135 | 40 | 32 |
| HOLE | 136 | 40 | 34 |
| HOLE | 137 | 40 | 38 |
| HOLE | 138 | 40 | 36 |
| HOLE | 139 | 40 | 37 |
| HOLE | 140 | 40 | 36 |
| HOLE | 141 | 40 | 32 |
| HOLE | 142 | 40 | 33 |
| HOLE | 143 | 40 | 36 |
| HOLE | 144 | 40 | 38 |
| HOLE | 145 | 40 | 37 |
| HOLE | 146 | 40 | 30 |
| HOLE | 147 | 40 | 39 |
| HOLE | 148 | 40 | 37 |
| HOLE | 149 | 40 | 38 |
| HOLE | 150 | 40 | 34 |
| HOLE | 151 | 40 | 37 |
| HOLE | 152 | 40 | 39 |
| HOLE | 153 | 40 | 39 |
| HOLE | 154 | 40 | 36 |

|      |     |    |    |
|------|-----|----|----|
| HOLE | 155 | 40 | 32 |
| HOLE | 156 | 40 | 37 |
| HOLE | 157 | 40 | 35 |
| HOLE | 158 | 40 | 38 |
| HOLE | 159 | 40 | 36 |
| HOLE | 160 | 40 | 37 |
| HOLE | 161 | 40 | 37 |
| HOLE | 162 | 40 | 34 |
| HOLE | 163 | 40 | 30 |
| HOLE | 164 | 40 | 37 |
| HOLE | 165 | 40 | 35 |
| HOLE | 166 | 40 | 38 |
| HOLE | 167 | 40 | 38 |
| HOLE | 168 | 40 | 40 |
| HOLE | 169 | 40 | 38 |
| HOLE | 170 | 40 | 39 |
| HOLE | 171 | 40 | 35 |
| HOLE | 172 | 40 | 35 |
| HOLE | 173 | 40 | 32 |
| HOLE | 174 | 40 | 33 |
| HOLE | 175 | 40 | 35 |
| HOLE | 176 | 40 | 37 |
| HOLE | 177 | 40 | 37 |
| HOLE | 178 | 40 | 37 |
| HOLE | 179 | 40 | 31 |
| HOLE | 180 | 40 | 35 |
| HOLE | 181 | 40 | 35 |
| HOLE | 182 | 40 | 39 |
| HOLE | 183 | 40 | 40 |
| HOLE | 184 | 40 | 42 |
| HOLE | 185 | 40 | 39 |
| HOLE | 186 | 40 | 36 |
| HOLE | 187 | 40 | 37 |
| HOLE | 188 | 40 | 36 |
| HOLE | 189 | 40 | 32 |
| HOLE | 190 | 22 | 26 |
| HOLE | 191 | 40 | 30 |
| HOLE | 192 | 40 | 30 |
| HOLE | 193 | 40 | 31 |
| HOLE | 194 | 40 | 40 |
| HOLE | 195 | 40 | 36 |
| HOLE | 196 | 40 | 34 |
| HOLE | 197 | 40 | 32 |
| HOLE | 198 | 40 | 36 |
| HOLE | 199 | 40 | 39 |
| HOLE | 200 | 40 | 38 |
| HOLE | 201 | 40 | 30 |
| HOLE | 202 | 40 | 34 |
| HOLE | 203 | 40 | 36 |
| HOLE | 204 | 40 | 30 |
| HOLE | 205 | 40 | 35 |
| HOLE | 206 | 40 | 34 |
| HOLE | 207 | 40 | 32 |

# MITCHELL LINE 19

| LINE   | STATIONS |        |         |          |        |        |        |
|--------|----------|--------|---------|----------|--------|--------|--------|
| LOCN   | 1000     | LXY    | 606823. | 6998244. |        |        |        |
| LOCN   | 1055     | LXY    | 610092. | 6997798. |        |        |        |
| LOCN   | 1139     | LXY    | 615085. | 6997125. |        |        |        |
| LOCN   | 1189     | LXY    | 618058. | 6996728. |        |        |        |
| LOCN   | 1239     | LXY    | 621031. | 6996330. |        |        |        |
| LOCN   | 1301     | LXY    | 624716. | 6995834. |        |        |        |
| LOCN   | 1362     | LXY    | 628343. | 6995347. |        |        |        |
| LOCN   | 1404     | LXY    | 630842. | 6995025. |        |        |        |
| ELEV   | 1000     |        |         |          |        |        |        |
| 282.09 | 282.39   | 282.30 | 282.47  | 282.26   | 281.95 | 281.80 | 281.46 |
| 281.96 | 282.24   | 282.48 | 283.36  | 285.02   | 287.04 | 289.24 | 291.49 |
| 291.45 | 290.53   | 289.13 | 288.13  | 287.58   | 286.80 | 287.61 | 288.59 |
| 289.48 | 290.54   | 290.75 | 291.13  | 291.48   | 291.75 | 292.09 | 292.54 |
| 292.97 | 293.57   | 293.97 | 294.56  | 294.95   | 295.81 | 296.35 | 297.24 |
| 298.80 | 299.92   | 300.45 | 300.96  | 301.44   | 302.09 | 302.53 | 303.34 |
| 304.28 | 305.17   | 305.65 | 306.05  | 306.28   | 306.67 | 306.92 | 306.99 |
| 306.82 | 306.68   | 306.70 | 306.55  | 306.35   | 305.80 | 305.18 | 304.52 |
| 304.08 | 303.31   | 302.63 | 301.73  | 301.03   | 300.25 | 299.70 | 298.95 |
| 298.62 | 298.05   | 297.64 | 297.10  | 296.69   | 296.41 | 296.12 | 295.54 |
| 295.13 | 294.50   | 293.95 | 293.30  | 292.87   | 292.22 | 291.52 | 290.89 |
| 290.65 | 290.39   | 290.34 | 289.93  | 289.48   | 289.15 | 288.99 | 288.79 |
| 288.70 | 288.77   | 288.80 | 288.72  | 288.77   | 288.86 | 288.67 | 288.40 |
| 287.99 | 287.54   | 287.14 | 286.78  | 286.49   | 286.30 | 286.34 | 286.37 |
| 286.52 | 286.47   | 286.08 | 285.56  | 285.42   | 285.38 | 285.48 | 285.53 |
| 285.57 | 285.63   | 285.65 | 285.75  | 285.83   | 285.89 | 286.04 | 286.19 |
| 286.32 | 286.39   | 286.66 | 286.72  | 286.95   | 286.97 | 287.07 | 287.18 |
| 287.24 | 287.08   | 287.16 | 287.12  | 286.87   | 286.58 | 286.14 | 285.83 |
| 285.62 | 285.75   | 285.85 | 286.11  | 286.43   | 286.75 | 286.99 | 286.74 |
| 286.47 | 286.37   | 286.17 | 286.00  | 285.72   | 285.53 | 285.65 | 285.49 |
| 285.61 | 285.67   | 286.40 | 286.63  | 286.42   | 286.48 | 286.50 | 286.55 |
| 286.58 | 286.68   | 286.76 | 286.98  | 287.39   | 288.08 | 288.11 | 288.31 |
| 288.58 | 288.92   | 289.02 | 289.11  | 289.06   | 289.09 | 288.89 | 288.86 |
| 288.83 | 289.00   | 289.22 | 289.56  | 290.16   | 290.78 | 290.98 | 291.11 |
| 291.25 | 291.67   | 291.95 | 292.11  | 292.40   | 292.60 | 292.58 | 292.76 |
| 293.02 | 293.60   | 293.85 | 294.23  | 294.48   | 294.53 | 294.61 | 294.62 |
| 294.62 | 294.65   | 294.63 | 294.70  | 294.84   | 295.14 | 295.28 | 295.34 |
| 295.44 | 295.69   | 295.90 | 296.39  | 297.02   | 297.71 | 298.68 | 299.70 |
| 300.65 | 301.69   | 302.98 | 304.04  | 305.55   | 307.36 | 308.56 | 309.36 |
| 310.12 | 310.69   | 310.89 | 310.98  | 311.40   | 311.84 | 311.94 | 311.80 |
| 311.98 | 312.33   | 312.74 | 313.29  | 313.48   | 313.77 | 314.03 | 314.17 |
| 314.40 | 314.67   | 314.94 | 315.23  | 315.77   | 316.16 | 316.74 | 317.14 |
| 317.37 | 317.84   | 318.66 | 319.69  | 320.66   | 321.95 | 323.05 | 322.75 |
| 323.10 | 324.12   | 325.50 | 327.15  | 328.77   | 330.60 | 330.92 | 330.73 |
| 331.03 | 331.00   | 330.50 | 329.90  | 329.48   | 329.14 | 329.10 | 329.17 |
| 329.16 | 328.83   | 328.21 | 326.72  | 324.61   | 322.79 | 321.04 | 319.42 |
| 318.06 | 316.69   | 315.40 | 314.47  | 315.48   | 316.98 | 318.77 | 321.10 |
| 323.10 | 325.29   | 327.53 | 329.58  | 331.30   | 332.87 | 332.56 | 331.30 |
| 329.88 | 328.59   | 327.12 | 325.77  | 324.70   | 323.96 | 323.56 | 323.54 |
| 324.06 | 325.00   | 325.84 | 326.97  | 327.67   | 326.84 | 325.40 | 323.43 |
| 321.42 | 319.71   | 317.97 | 316.19  | 314.72   | 313.72 | 312.94 | 311.78 |
| 310.22 | 308.76   | 307.19 | 306.00  | 304.96   | 303.82 | 302.74 | 301.70 |
| 300.62 | 299.74   | 298.68 | 297.55  | 296.39   | 295.86 | 296.54 | 297.39 |

|         |        |        |        |        |        |        |        |
|---------|--------|--------|--------|--------|--------|--------|--------|
| 298.21  | 298.46 | 298.13 | 297.33 | 295.56 | 296.36 | 296.81 | 297.53 |
| 298.46  | 298.86 | 299.32 | 298.05 | 297.69 | 297.84 | 297.97 | 298.00 |
| 298.11  | 298.47 | 299.68 | 300.74 | 301.59 | 302.45 | 303.30 | 304.29 |
| 305.09  | 305.79 | 306.55 | 306.83 | 307.31 | 307.94 | 308.68 | 309.42 |
| 310.29  | 311.00 | 311.72 | 312.31 | 312.99 | 313.72 | 314.56 | 315.44 |
| 316.49  | 317.33 | 318.40 | 319.23 | 320.80 | 322.50 | 324.77 | 326.54 |
| 326.17  | 324.26 | 323.15 | 321.73 | 321.04 | 319.70 | 319.46 | 320.87 |
| 321.19  | 321.86 | 323.39 | 324.45 | 325.24 |        |        |        |
| PATTERN | 1      |        |        |        |        |        |        |
| PSTAT   | 1000   |        |        |        |        |        |        |
| 1       | 1000   |        |        |        |        |        |        |
| 96      | 1095   |        |        |        |        |        |        |
| SOURCE  | 1      | 96     | IN-PER |        |        |        |        |
| SHOT    | 1      | 1000   |        |        | 1      | 1000   |        |
| SHOT    | 2      | 1006   |        |        | 1      | 1000   |        |
| SHOT    | 3      | 1012   |        |        | 1      | 1000   |        |
| SHOT    | 4      | 1018   |        |        | 1      | 1000   |        |
| SHOT    | 5      | 1024   |        |        | 1      | 1000   |        |
| SHOT    | 6      | 1030   |        |        | 1      | 1000   |        |
| SHOT    | 7      | 1036   |        |        | 1      | 1000   |        |
| SHOT    | 8      | 1042   |        |        | 1      | 1006   |        |
| SHOT    | 9      | 1048   |        |        | 1      | 1012   |        |
| SHOT    | 10     | 1054   |        |        | 1      | 1018   |        |
| SHOT    | 11     | 1060   |        |        | 1      | 1024   |        |
| SHOT    | 12     | 1066   |        | -6     | 1      | 1030   |        |
| SHOT    | 13     | 1072   |        | 8      | 1      | 1036   |        |
| SHOT    | 14     | 1078   |        | 8      | 1      | 1042   |        |
| SHOT    | 15     | 1084   |        | -7     | 1      | 1048   |        |
| SHOT    | 16     | 1090   |        |        | 1      | 1054   |        |
| SHOT    | 17     | 1096   |        |        | 1      | 1060   |        |
| SHOT    | 18     | 1102   |        | 20     | 1      | 1066   |        |
| SHOT    | 19     | 1108   |        | 15     | 1      | 1072   |        |
| SHOT    | 20     | 1114   |        | 8      | 1      | 1080   |        |
| SHOT    | 21     | 1120   |        |        | 1      | 1084   |        |
| SHOT    | 22     | 1126   |        |        | 1      | 1090   |        |
| SHOT    | 23     | 1132   |        | 8      | 1      | 1096   |        |
| SHOT    | 24     | 1138   | 15     |        | 1      | 1096   |        |
| SHOT    | 25     | 1144   |        | 8      | 1      | 1108   |        |
| SHOT    | 26     | 1150   |        | 8      | 1      | 1114   |        |
| SHOT    | 27     | 1156   |        | 8      | 1      | 1120   |        |
| SHOT    | 28     | 1162   |        | 11     | 1      | 1126   |        |
| SHOT    | 29     | 1168   |        | 10     | 1      | 1132   |        |
| SHOT    | 30     | 1180   |        |        | 1      | 1144   |        |
| SHOT    | 31     | 1186   |        |        | 1      | 1150   |        |
| SHOT    | 32     | 1192   |        | 11     | 1      | 1156   |        |
| SHOT    | 33     | 1198   |        |        | 1      | 1162   |        |
| SHOT    | 34     | 1204   |        |        | 1      | 1168   |        |
| SHOT    | 35     | 1210   |        |        | 1      | 1174   |        |
| SHOT    | 36     | 1216   |        |        | 1      | 1180   |        |
| SHOT    | 37     | 1222   |        | 9      | 1      | 1186   |        |
| SHOT    | 38     | 1228   |        | 9      | 1      | 1192   |        |
| SHOT    | 39     | 1234   |        |        | 1      | 1198   |        |
| SHOT    | 40     | 1240   |        |        | 1      | 1204   |        |
| SHOT    | 41     | 1246   |        |        | 1      | 1210   |        |
| SHOT    | 42     | 1252   |        |        | 1      | 1216   |        |

|      |    |      |    |    |   |      |
|------|----|------|----|----|---|------|
| SHOT | 43 | 1258 |    | 8  | 1 | 1222 |
| SHOT | 44 | 1264 |    |    | 1 | 1228 |
| SHOT | 45 | 1270 |    | 9  | 1 | 1234 |
| SHOT | 46 | 1276 |    | -6 | 1 | 1240 |
| SHOT | 47 | 1282 |    | 9  | 1 | 1246 |
| SHOT | 48 | 1288 |    | 9  | 1 | 1252 |
| SHOT | 49 | 1294 |    | 9  | 1 | 1258 |
| SHOT | 50 | 1301 |    | 10 | 1 | 1264 |
| SHOT | 51 | 1306 |    |    | 1 | 1270 |
| SHOT | 52 | 1312 |    | 7  | 1 | 1276 |
| SHOT | 53 | 1318 |    | 7  | 1 | 1282 |
| SHOT | 54 | 1324 |    |    | 1 | 1288 |
| SHOT | 55 | 1330 |    | 9  | 1 | 1294 |
| SHOT | 56 | 1336 |    | 9  | 1 | 1300 |
| SHOT | 57 | 1342 |    | 9  | 1 | 1306 |
| SHOT | 58 | 1347 |    |    | 1 | 1309 |
| SHOT | 59 | 1355 |    | 9  | 1 | 1309 |
| SHOT | 60 | 1360 |    | 9  | 1 | 1309 |
| SHOT | 61 | 1366 |    |    | 1 | 1309 |
| SHOT | 62 | 1371 |    |    | 1 | 1309 |
| SHOT | 63 | 1378 |    |    | 1 | 1309 |
| SHOT | 64 | 1384 |    |    | 1 | 1309 |
| SHOT | 65 | 1390 |    |    | 1 | 1309 |
| SHOT | 66 | 1396 |    |    | 1 | 1309 |
| SHOT | 67 | 1402 |    |    | 1 | 1309 |
| SHOT | 68 | 1404 |    |    | 1 | 1309 |
| HOLE | 1  | 15   | 30 |    |   |      |
| HOLE | 2  | 12   | 19 |    |   |      |
| HOLE | 3  | 40   | 27 |    |   |      |
| HOLE | 4  | 40   | 27 |    |   |      |
| HOLE | 5  | 40   | 35 |    |   |      |
| HOLE | 6  | 40   | 36 |    |   |      |
| HOLE | 7  | 40   | 35 |    |   |      |
| HOLE | 8  | 40   | 34 |    |   |      |
| HOLE | 9  | 40   | 28 |    |   |      |
| HOLE | 10 | 25   | 19 |    |   |      |
| HOLE | 11 | 40   | 41 |    |   |      |
| HOLE | 12 | 40   | 35 |    |   |      |
| HOLE | 13 | 31   | 21 |    |   |      |
| HOLE | 14 | 40   | 30 |    |   |      |
| HOLE | 15 | 40   | 39 |    |   |      |
| HOLE | 16 | 40   | 34 |    |   |      |
| HOLE | 17 | 40   | 32 |    |   |      |
| HOLE | 18 | 40   | 32 |    |   |      |
| HOLE | 19 | 12   | 16 |    |   |      |
| HOLE | 20 | 27   | 22 |    |   |      |
| HOLE | 21 | 32   | 26 |    |   |      |
| HOLE | 22 | 40   | 32 |    |   |      |
| HOLE | 23 | 40   |    |    |   |      |
| HOLE | 24 | 40   | 30 |    |   |      |
| HOLE | 25 | 40   | 36 |    |   |      |
| HOLE | 26 | 40   | 43 |    |   |      |
| HOLE | 27 | 40   | 40 |    |   |      |
| HOLE | 28 | 40   | 31 |    |   |      |
| HOLE | 29 | 40   | 45 |    |   |      |

|      |    |    |    |
|------|----|----|----|
| HOLE | 30 | 40 | 35 |
| HOLE | 31 | 40 | 30 |
| HOLE | 32 | 40 | 30 |
| HOLE | 33 | 27 | 20 |
| HOLE | 34 | 40 | 30 |
| HOLE | 35 | 40 | 28 |
| HOLE | 36 | 15 | 10 |
| HOLE | 37 | 40 | 30 |
| HOLE | 38 | 40 | 32 |
| HOLE | 39 | 40 | 40 |
| HOLE | 40 | 40 | 34 |
| HOLE | 41 | 40 | 37 |
| HOLE | 42 | 40 | 35 |
| HOLE | 43 | 40 | 39 |
| HOLE | 44 | 40 | 40 |
| HOLE | 45 | 40 | 38 |
| HOLE | 46 | 40 | 30 |
| HOLE | 47 | 40 | 35 |
| HOLE | 48 | 40 | 38 |
| HOLE | 49 | 32 | 38 |
| HOLE | 50 | 32 | 25 |
| HOLE | 51 | 40 | 37 |
| HOLE | 52 | 40 | 39 |
| HOLE | 53 | 40 | 39 |
| HOLE | 54 | 40 | 38 |
| HOLE | 55 | 40 | 35 |
| HOLE | 56 | 40 | 40 |
| HOLE | 57 | 17 | 20 |
| HOLE | 58 | 40 | 42 |
| HOLE | 59 | 40 | 38 |
| HOLE | 60 | 40 | 41 |
| HOLE | 61 | 40 | 40 |
| HOLE | 62 | 40 | 38 |
| HOLE | 63 | 40 | 41 |
| HOLE | 64 | 40 | 41 |
| HOLE | 65 | 40 | 40 |
| HOLE | 66 | 40 | 41 |
| HOLE | 67 | 40 | 41 |
| HOLE | 68 | 40 | 40 |

## **APPENDIX 8**

### **Equipment Performance and Survey Progress Report**

#### **Beenleigh Area:**

##### **Traverse 2 (1986) :**

9/9/86

Station no.s 1000 to 1067

17 Shots fired, 3 blowouts

##### **ERRORS**

S.P. 1050 (no data recorded onto tape)

S.P. 1057 (no data recorded onto tape)

S.P. 1063 (no data recorded onto tape)

S.P. 1064 (no data recorded onto tape)

The equipment fault causing the 'no data recorded on tape' was diagnosed as due to low battery power.

##### **Traverse 1 (1986) :**

11/9/86

Station no.s 1000 to 1067

17 shots fired

##### **ERRORS**

S.P. 1067 (no data recorded on tape)

The fault was again diagnosed as due to low battery voltage. No error codes were documented.

#### **Darling Downs Area:**

##### **Traverse 15:**

15/9/86

Station no.s 1000 to 1107

12 Shots fired, 1 blowout

16/9/86

Station no.s 1036 to 1202

14 Shots fired, 1 misfire

##### **ERRORS**

S.P. 1108 6A19, 7C40

S.P. 1149 misfire

Other errors which occurred were :

4A33, 4A31, 7A15, 4E33 in middle of tape.

Examination of boards within the MCU revealed the following chips which were loose.

LS board :

chip D9

chip A9

LI board :

chip C14

PBC board :

chip A18

chip A7

chip B3

17/9/86

Station no.s 1126 to 1268

12 Shots fired

18/9/86

Station no.s 1198 to 1361

19 Shots fired, 2 blowouts

ERRORS

File 102 (Sine wave test) 7A15 I/O 1 13

File 104 (Sine wave test) 4A31

S.P. 1257 7A15 I/O 1 13 (no data recorded onto tape)

S.P. 1263 7A17, 5C38 I/O 2 1 (data recorded onto tape)

S.P. 1293 4C37 (data recorded onto tape)

S.P. 1317 Low battery power (no data recorded onto tape)

S.P. 1322 5C40 1268 (no data recorded onto tape)

S.P. 1353 4A49 (no data recorded onto tape)

### Summary of Traverse 15

57 succesful shots, 1 misfire, 4 shots not recorded to tape due to equipment failure.

### Traverse 17:

22/9/86

Station no.s 986 to 1127

15 Shots fired, 2 misfires

G. Bell from seismic supply arrived and visited the line. On return from the line the tape transport was checked. One faulty read track was located. the fault was isolated to a faulty chip, SN745124, on the PLLR sub-board of an R300 board.

ERRORS

S.P. 1077 4A31 (2 sec. record)

23/9/86

The tape transport was calibrated, some realignment was required on one R300 board. Complete spread, excluding geophones laid out in camp and tested by G. Bell. One SU failed testing, one SU suspected of causing line parity errors.

24/9/86

Station no.s 1059 to 1237

17 Shots fired, 1 misfire, 1 blowout

G.Bell was present on the line and made some suggestions for our operational procedures. Tapes were rewound prior to the recording cab moving. Since following this advice tape problems have been reduced. The CSU and TB/UH units were swapped to check if they were producing the transmission line errors, however this was not the case. Numbering of the SU connecting cables was commenced and each subsequent day four cables were left out of the spread in an attempt to isolate the source of the transmission line errors. SU's were not left out of the spread since less than 107 units would affect production efficiency adversely. (2 SU's were sent to Brisbane). The problem is most likely to be a cable rather than a SU. Should an opportunity arise the spread will be laid out in camp and some elimination tests carried out.

ERRORS

File 157 4A31 on group 2 playback  
 S.P. 1132 misfire, bad detonator  
 S.P. 1162 2E34 (end of tape, 10 sec. record)  
 25/9/86  
 Station no.s 1167 to 1307  
 10 Shots fired, 2 misfires, 4 blowouts  
 Cable no.s left out of spread: 2,3,4,5,6  
 SU's left out of spread:  
 3444,6292,6451  
 Camera timing lines were intermittent throughout the day.  
 ERRORS  
 Transmission parity errors in worst situation experienced were:  
 7A16, 7A17, 6A19, 7C40, 5C38  
 S.P. 1203 7A16 2 syncro, 1 encoding, 1 word count (in seismonitor  
 mode only)  
 S.P. 1209 weak shot  
 S.P. 1221 misfire (no data recorded)  
 S.P. 1249 parity errors in seismonitor, misfire  
 (no data recorded)  
 26/9/86  
 Station no.s 1239 to 1404  
 16 Shots fired, 7 blowouts, 2 partial blowouts  
 Cable no.s left out of spread: 7,8,9,10,11  
 ERRORS  
 S.P. 1306 6 parity, 1 encode, 1 word count in  
 seismonitor.  
 4C37, TB/UH located at station 1306 (on shot)  
 S.P. 1317A 1 syncro, 1 encoding in seismonitor  
 S.P. 1317B 4C37  
 S.P. 1324 1 parity, 1 word count  
 S.P. 1335 2 parity on camera start up  
 S.P. 1342 7 parity in seismonitor  
 1 parity on record  
 S.P. 1353 1 parity on record  
 S.P. 1365 1 parity on record  
 Mode 300 run on spread from station 1254 to 1344 gave no faults.  
 29/9/86  
 Station no.s 1334 to 1509  
 13 Shots fired, 2 not recorded  
 Cable no.s left out of spread: 12,13,14,15  
 S.P. 1389 4C37  
 S.P. 1396 4C37  
 S.P. 1407 1 parity on record  
 S.P. 1417 F3 parity on record  
 S.P. 1419 3 parity on record  
 S.P. 1450 low power (no data recorded)  
 S.P. 1455 low power (no data recorded)  
 30/9/86  
 Station no.s 1401 to 1549  
 9 Shots fired, 2 blowouts  
 Cable no.s left out of spread: 16,17,18,19  
 Unservicable SU geophone take-out adapter detected, broken  
 internal wire due to adapter flexing.  
 ERRORS

S.P. 1482A 4A31 (2 sec. record, shot not fired)  
 S.P. 1482A was then successfully fired and recorded  
 1/10/86  
 Station no.s 1455 to 1584  
 14 Shots fired, 5 blowouts  
 Cable no.s left out of spread:  
 20,21,22,23  
 Corona wire in camera broken, subsequently repaired.  
 ERRORS  
 S.P. 1502 error in auxiliary channel, suspected wet connector from  
 uphole geophone.  
 2/10/86  
 Station no.s 1508 to 1649  
 13 Shots fired  
 Cable no.s left out of spread: 24,25,26,27  
 Corona wire in camera broken again, the cause of this problem was  
 located to carbon tracks deposited onto the insulating blocks of  
 the wire assembly. No further problems were encountered with the  
 camera after this was done. It was noted that it was not possible  
 to obtain any traces while the unit was open due to exposure to  
 sunlight. On mode 221 traces 1 to 30 were dead, on playback they  
 were OK.  
 ERRORS  
 S.P. 1598 4C37  
 3/10/86  
 Station no.s 1581 to 1686  
 6 Shots fired  
 Cable no.s left out of spread: 28,29,30,31,32  
 Traces 1 to 30 were again dead on camera, MCU to camera wiring  
 was checked and was OK. The problem was isolated to board PB1 in  
 the MCU. PB1 and PB2 were swapped with each other which solved  
 the problem. They were then returned to their original locations  
 and again worked properly. The probable cause was either a loose  
 board or dirty connections. Severe thunderstorms were experienced  
 in the afternoon and recording was terminated for the day.  
 ERRORS  
 S.P. 1598 4C37  
 6/10/86  
 Station no.s 1617 to 1794  
 17 Shots fired, 1 not fired  
 Cable no.s left out of spread: 33,34,35,36  
 ERRORS  
 S.P. 1743 Det wire lost down hole  
 7/10/86  
 Station no.s 1725 to 1868  
 12 Shots fired  
 Cable no.s left out of spread:  
 37,38,39,40  
 ERRORS  
 S.P. 1827 7A15  
 8/10/86  
 Station no.s 1798 to 1959  
 22 Shots fired, 1 blowout  
 Extremely noisy records mainly due to traffic through town,  
 tractors near spread and wind.

## ERRORS

S.P. 1929 1 parity error on record

9/10/86

In camp testing line in an attempt to locate transmission parity error source.

## Summary of Traverse 17:

163 succesful shots, 5 misfires, 2 shots not recorded to tape due to equipment failure.

## GENERAL COMMENTS:

The source of the line transmission parity errors has yet to be located. Whilst no data has been lost because of this problem it is desirable that it be solved. The majority of these errors have occurred in seismonitor mode. The remedial action taken is to stop mode 201 prior to shooting and rerun it then fire the shot. Various strange things happen when battery power is low. The telephone has been connected to the MCU to monitor for low power warning but has not yet been tested. In practice about six shots can be fired before the batteries are charged. This procedure operates quite satisfactorily as after this number of shots a spread move is required. This problem should be re-addressed if the number of station units is increased and a 96 channel camera is installed. i.e. extra power required by two additional PB boards, camera, and the reduced power needed by the lower usage of the tape transport in such a configuration. Production efficiency would be substantially increased with a 100% roll along capability. The blasting units have been giving some problems. The SERCEL equipment does cause radio interference in the cab whilst the gear is running.

10/10/86

G.Bell again visited the camp. All cables were checked for faults, however none were found. The LI board was found to be faulty. Checks were carried out by exchanging the left line to the right line and no parity errors were evident. Chip C11 was replaced and the left line was again operational. The procedure for using the

Right line requires the cab position to be set at LINE NO.-1 and the HIGH and LOW lines exchanged at the CSU.

11/10/86 - 12/10/86

The equipment was run throughout the weekend to confirm that the problem had been solved. The only errors encountered were 7A20's which on some occasions cause the keyboard to lock-up. This fault is of some concern, and I believe not due to low power.

## Mitchell Area:

## Traverse 19:

15/10/86

Station no.s 1000 to 1185

22 Shots fired, 1 blowout, 1 weak shot

ERRORS

7A20, DU locked out while line testing.

S.P. 1006 blowout

S.P. 1012 weak shot

S.P. 1054 4C37

S.P. 1060 swapped left and right lines on MCU, 4C37

S.P. 1066 1 parity

S.P. 1090 1 parity

S.P. 1114 2 parity, on left line

16/10/86

Spent morning in camp fitting new generator to cab. Replaced two chips common to left and right lines on LI board. Parity errors on left line still occurred, however the right line was OK. Recorded 3 refraction shots, sites 44, 27, 52, into the spread.

Station no.s 1096 to 1203

3 Shots fired, 1 very weak shot.

ERRORS

7A20 errors occasionally encountered

17/10/86

2 refraction shots recorded, sites 6 and 38, with spread which included 3 sets of three component geophones.

Station no.s 1114 to 1258

12 Shots fired, 1 misfire

ERRORS

S.P. 1176 detonator only

20/10/86

Completed Traverse 19.

Station no.s 1192 to 1404

31 Shots fired

ERRORS

S.P. 1228 4C37, no parity errors, on right line

S.P. 1318 2 parity

S.P. 1324 1 parity

### **Summary of Traverse 19**

68 successful shots, 1 misfire, 5 refraction shots recorded into spread successfully (50 second records).

### **Traverse 18:**

21/10/86

Station no.s 940 to 1085

17 Shots fired

7 Refraction shots recorded

ERRORS

S.P. 958 F3 parity

S.P. 976 3 parity, 4C37

S.P. 982 4C37, no parity

Refraction S.P. 21 1 syncro, 6 parity, 7A15

Refraction S.P. 27 2 tape parity errors

22/10/86

Station no.s 1006 to 1113

9 Shots fired

ERRORS

S.P. 1042 2 sec. record, operator fault.

S.P. 1078 Traces 1 to 37, pulse on start of record.  
Numerous 7A20 errors.

S.U. S/No. 6448 failed mode 300 test, this unit had been suspected as being faulty previously and was sent to Brisbane where no faults were found. The fault in this unit occurred after a spread move, one would suspect a dry joint or loose connection to be its cause. A visual inspection of the components did not reveal any obvious faults. It will be returned to the suppliers in the near future. The recording cab was returned to camp for fault finding.

23/10/86

MCU examined, faults still present. Symptoms were 7A20 errors sometimes occurring as reset requests, and other times causing the DU to lock-up requiring power to be shut down from the main battery switch. The LI and SB boards were removed and examined then replaced. No faults occurred after this action.

24/10/86

Cab temperature was heated to 39 degrees and equipment operated without fault for about three hours.

26/10/86

The system was turned on for checking prior to commencing work on the following day, however the gear failed to power up.

27/10/86

MCU dismantled, system still inoperative. G.Bell contacted, he was very ill from an overseas trip, but offered some suggestions. LSI console failed to power up. The source of the malfunction is still unknown.

28/10/86

G.Bell off work sick. We are battling on. It is likely that the fault is simple, but as yet we have had no joy.

29/10/86

Equipment still faulty.

30/10/86

Recording cab taken to Seismic Supply in Brisbane.

31/10/86

Fault located in DEC board in PU. Three transistors were replaced and system was once again operational. Two of the power supplies in the PU operate in parallel, with one in a fault condition the other is driven down. Trouble-shooting of this problem was carried out by

first checking the input voltages of the MCU. The power supplies in question supplied plus and minus 5 Volts. On the MCU the power rails gave 4.2 V and 4.9 V in the fault condition. Other symptoms were a very hot module in the PU, i.e. the servicable module attempting to bring the levels up. A number of links in the MCU

enabled each MCU board to be removed prior to the system being powered up as an aid to the fault location. Seismic Supply informed us that a replacement LI board is en-route from France and should solve our line parity problems. The recording cab should be returned to Brisbane after completion of the survey for the fitting of this unit.

1/11/86

System tested for three hours prior to departing back to camp.

3/11/86

Station no.s 1060 to 1244

20 Shots fired, 1 shot no data recorded

ERRORS

S.P. 1102 4C37 2 parity

S.P. 1156 1 parity

S.P. 1210 5C40, 1 encoding, F1 parity, NO DATA

4/11/86

No Shots fired

ERRORS

Burst record and mode 221 tests operated normally. After line checking was completed 4A14 and 4A11 errors were encountered. Tape Unit failed to respond to manual tape controls. Returned to camp. Fault located in Tape Unit power supply Chassis assembly. Two power

transistors and two resistors were replaced. Two transistors were also replaced on one of the chopper power supply boards. Equipment again operational.

5/11/86

Station no.s 1180 to 1341

23 Shots fired

ERRORS

S.P. 1216 4C37 F1 parity

S.P. 1222 4C37 4 parity

S.P. 1228 1 parity

S.P. 1231 1 parity

S.P. 1237 Pulses on Tr. 1 to 37, Cross-feed from blaster.

S.P. 1243 F1 parity, 1 encoding, 5C40 I/O2 18

S.P. 1246 7A15, 5 parity, 1 encoding, 6 WC, 4 syncro

S.P. 1258 1 parity

S.P. 1267 1 parity

S.P. 1270 F1 parity

S.P. 1273 F3 parity, Blown Galvo fuse in camera.

S.P. 1330A 4C37, NOTE: no parity

S.P. 1276 F3 parity

6/11/86

No Shots fired

ERRORS

4C02 in mode 110

4C19 clock error

In mode 110 the start of the line was located however the geophone pulse response test failed to initiate. The problem was due to a PSU missing in the line. The PSU in the shooting vehicle was insufficient to power up 37 stations. 4A31 error occurred when attempting a detonator test for the day. Recorder was returned to camp. Diagnostic tests determined that the fault was in the TC board of the MCU, the board was cooled in a fridge!, and the system was again operational.

7/11/86

The fault was reproduced but the fault was not located.

Diagnostics run were:

Mode 10

I/O 1 1 ( WC BOARD )

I/O 2 0

I/O 3 0

All OK  
 Mode 10  
     I/O 1 2     ( TC BOARD, DATA ON )  
     I/O 2 0  
     I/O 3 0  
 Error encountered in TC output  
 Mode 10  
     I/O 1 2     ( TC BOARD, TAPE BYPASS )  
     I/O 2 0  
     I/O 3 0  
 All OK  
 Tape drive tested with no apparent faults.  
 Areas suspected of being faulty were circuits TC05, TC07  
 8/11/86  
 Fault could not be reproduced.  
 9/11/86  
 Station no.s 1248 to 1355  
 12 Shots fired  
 OYO blaster used for the first time. Left line on MCU used.  
 ERRORS  
 S.P. 1294 1 parity  
 S.P. 1297 1 parity  
 S.P. 1309 2 parity  
 S.P. 1318 1 parity  
 10/11/86  
 Station no.s 1285 to 1464  
 36 Shots fired  
 ERRORS  
 Left line 7A17 parity errors in seismonitor, changed to Right  
 line prior to first shot.  
 S.P. 1336 7A17 1 syncro, 3 parity, 5C38 (tape suspected)  
 SU 3432 was damaged by a vehicle, line plug socket damaged.  
  
 11/11/86  
 Station no.s 1397 to 1616  
 33 Shots fired, 3 misfires ( bad explosives )  
 On start-up traces 1 to 30 on camera were faulty, CAMERA to MCU  
 plug was removed and replaced which solved the fault. Right line  
 used.  
 NOTE: NOT ONE ERROR OCCURRED THROUGHOUT THE WHOLE DAY!!  
       THE MOST PRODUCTIVE DAY TO DATE WITH THE SN368  
  
 12/11/86  
 Rained heavily.  
  
 13/11/86  
 Traverse unsuitable for work due to wet conditions.  
  
 14/11/86  
 Starting to dry out.  
  
 17/11/86  
 Station no.s 1549 to 1841  
 21 Shots fired, 14 misfires ( bad explosives ),  
 1 Weak shot.

#### ERRORS

S.P. 1588 Misfire  
S.P. 1612 Misfire  
S.P. 1618 Misfire  
S.P. 1630 Misfire  
S.P. 1636 Misfire 9 syncro, 1 encoding, FF word count,  
7A17,6A19,7C40,5C38. Suspected disconnection  
in line during acquisition after misfire.  
S.P. 1652 Misfire  
S.P. 1661 Weak shot  
S.P. 1666 Misfire  
S.P. 1672 Misfire  
S.P. 1696 Misfire  
S.P. 1720 Misfire  
S.P. 1726 Misfire  
S.P. 1326 Misfire 9 syncro, 1 encoding, FF word count,  
F3 parity, 7A15,7A17,6A19,7C40,5C38. Suspected  
disconnection in line during acquisition after  
misfire.  
S.P. 1738 Misfire  
S.P. 1744 Misfire, 3 parity  
S.P. 1780 F0 tape parity  
S.P. 1792 4A12 on an attempt to fire a shot (wrong tape speed).  
Tape unit or MCU suspected of overheating. Operated normally four  
hours later when cooled down.

NOTE : After tape unit has been in load and not energised prior  
to a tape control function error 4A14 occurs, whereas error 4A11  
should occur.

18/11/86

Station no.s 1756 to 2025

23 Shots fired, 9 misfires ( bad explosives ), 1 shot not  
located.

#### ERRORS

S.P. 1798 Misfire  
S.P. 1804 Misfire  
S.P. 1810 Misfire  
S.P. 1852 Misfire  
S.P. 1900 Misfire  
S.P. 1906 Misfire  
S.P. 1918 Misfire  
S.P. 1924 Det wire lost  
S.P. 1960 Misfire  
S.P. 1984 Misfire

19/11/86

Station no.s 1954 to 2088

14 Shots fired, 4 misfires ( bad explosives?)

#### ERRORS

S.P. 1996 Misfire  
S.P. 2002 Misfire  
S.P. 2008 Misfire 7A15, 1 syncro, F5 tape parity  
S.P. 2044 7A15, 3 syncro, F3 tape parity  
S.P. 2074 Misfire 7 syncro, F5 tape parity

**Summary of Traverse 18:**

207 succesful shots, 32 misfires, 1 shot not found,  
7 refraction shots recorded (50 second records).  
2 major equipment failures.  
Survey completed, returned to Canberra.

## APPENDIX 9

### Gravity Principal Facts

#### Beenleigh Area:

##### Traverse 1

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1000 | 27.721001 | 153.255997 | 5.4         | 9791914.38                         | 289.26                       | 283.18                          |
| 1008 | 27.721666 | 153.260834 | 2.7         | 9791921.25                         | 286.36                       | 283.38                          |
| 1016 | 27.722334 | 153.265671 | 2.4         | 9791920.63                         | 285.03                       | 282.30                          |
| 1024 | 27.723000 | 153.270493 | 3.0         | 9791926.25                         | 292.54                       | 289.13                          |
| 1032 | 27.723667 | 153.275330 | 2.0         | 9791930.00                         | 291.86                       | 289.60                          |
| 1040 | 27.724333 | 153.280167 | 1.5         | 9791926.88                         | 287.16                       | 285.47                          |
| 1048 | 27.725000 | 153.284836 | 2.3         | 9791926.25                         | 287.63                       | 285.09                          |
| 1056 | 27.725668 | 153.289673 | 2.1         | 9791926.25                         | 287.01                       | 284.70                          |
| 1064 | 27.726334 | 153.294495 | 1.6         | 9791923.13                         | 281.10                       | 279.34                          |
| 1067 | 27.726667 | 153.296326 | 1.3         | 9791923.13                         | 280.26                       | 278.81                          |

##### Traverse 2

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1000 | 27.823668 | 153.298660 | 10.7        | 9791969.38                         | 283.58                       | 271.64                          |
| 1008 | 27.824333 | 153.303497 | 11.3        | 9791974.38                         | 290.44                       | 277.82                          |
| 1016 | 27.825001 | 153.308167 | 7.3         | 9791983.75                         | 286.19                       | 278.05                          |
| 1024 | 27.825666 | 153.313004 | 5.3         | 9791990.00                         | 286.29                       | 280.39                          |
| 1032 | 27.826332 | 153.317841 | 3.6         | 9791995.63                         | 286.73                       | 282.71                          |
| 1040 | 27.827000 | 153.322662 | 12.9        | 9791975.00                         | 293.41                       | 279.03                          |
| 1048 | 27.827667 | 153.327499 | 8.4         | 9791991.88                         | 296.64                       | 287.21                          |
| 1056 | 27.828501 | 153.332336 | 12.9        | 9791980.63                         | 298.00                       | 283.54                          |
| 1064 | 27.829166 | 153.337173 | 7.2         | 9791996.88                         | 296.47                       | 288.46                          |
| 1067 | 27.829332 | 153.338837 | 14.9        | 9791981.25                         | 304.64                       | 288.00                          |

# Darling Downs Area:

## Traverse 15

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>( $\text{ums}^{-2}$ ) | F.A.<br>( $\text{ums}^{-2}$ ) | Bouguer<br>( $\text{ums}^{-2}$ ) |
|------|-----------|------------|-------------|-------------------------------------|-------------------------------|----------------------------------|
| 1000 | 27.361834 | 151.423660 | 359.5       | 9790605.63                          | 337.54                        | -64.64                           |
| 1006 | 27.364834 | 151.422165 | 360.0       | 9790609.38                          | 340.40                        | -62.37                           |
| 1012 | 27.367832 | 151.420837 | 360.0       | 9790613.13                          | 342.12                        | -60.59                           |
| 1018 | 27.370832 | 151.419327 | 360.2       | 9790616.88                          | 344.17                        | -58.83                           |
| 1024 | 27.373833 | 151.417999 | 360.4       | 9790621.25                          | 346.60                        | -56.60                           |
| 1030 | 27.376833 | 151.416504 | 360.6       | 9790625.63                          | 348.97                        | -54.41                           |
| 1036 | 27.379833 | 151.415161 | 360.2       | 9790630.00                          | 351.64                        | -51.35                           |
| 1042 | 27.382833 | 151.413666 | 360.4       | 9790633.13                          | 352.82                        | -50.37                           |
| 1048 | 27.385834 | 151.412338 | 360.2       | 9790636.25                          | 352.77                        | -50.18                           |
| 1054 | 27.388832 | 151.410995 | 360.4       | 9790638.75                          | 353.41                        | -49.77                           |
| 1060 | 27.391832 | 151.409500 | 360.6       | 9790641.25                          | 354.59                        | -48.79                           |
| 1067 | 27.395500 | 151.408661 | 360.7       | 9790641.88                          | 353.00                        | -50.48                           |
| 1073 | 27.398666 | 151.408173 | 361.3       | 9790641.25                          | 351.72                        | -52.43                           |
| 1079 | 27.402000 | 151.407669 | 361.1       | 9790641.88                          | 348.70                        | -55.26                           |
| 1085 | 27.405167 | 151.407166 | 361.5       | 9790642.50                          | 347.97                        | -56.41                           |
| 1091 | 27.408333 | 151.406662 | 361.5       | 9790644.38                          | 347.43                        | -56.98                           |
| 1097 | 27.411501 | 151.406006 | 361.7       | 9790645.00                          | 346.14                        | -58.48                           |
| 1103 | 27.414833 | 151.405502 | 361.5       | 9790645.00                          | 343.78                        | -60.67                           |
| 1109 | 27.417999 | 151.404999 | 361.2       | 9790646.88                          | 342.07                        | -61.98                           |
| 1115 | 27.421167 | 151.404495 | 360.7       | 9790649.38                          | 340.59                        | -62.93                           |
| 1121 | 27.424500 | 151.404007 | 360.5       | 9790650.00                          | 338.85                        | -64.49                           |
| 1127 | 27.427668 | 151.403336 | 360.0       | 9790652.50                          | 337.06                        | -65.63                           |
| 1133 | 27.430834 | 151.402832 | 359.7       | 9790655.00                          | 336.19                        | -66.18                           |
| 1139 | 27.434000 | 151.402328 | 359.4       | 9790656.88                          | 334.76                        | -67.32                           |
| 1145 | 27.437332 | 151.401840 | 359.1       | 9790658.75                          | 333.72                        | -67.99                           |
| 1151 | 27.440500 | 151.401169 | 358.9       | 9790661.25                          | 333.22                        | -68.30                           |
| 1157 | 27.443666 | 151.400665 | 358.8       | 9790663.75                          | 332.97                        | -68.46                           |
| 1163 | 27.446833 | 151.400162 | 358.8       | 9790665.63                          | 332.29                        | -69.12                           |
| 1169 | 27.450167 | 151.399673 | 358.6       | 9790666.25                          | 330.45                        | -70.75                           |
| 1175 | 27.453333 | 151.399170 | 358.6       | 9790665.63                          | 327.33                        | -73.87                           |
| 1181 | 27.456499 | 151.398499 | 358.8       | 9790665.00                          | 324.60                        | -76.74                           |
| 1187 | 27.459833 | 151.397995 | 359.0       | 9790665.00                          | 322.84                        | -78.77                           |
| 1193 | 27.462999 | 151.397507 | 359.4       | 9790665.63                          | 322.86                        | -79.21                           |
| 1199 | 27.466167 | 151.397003 | 359.6       | 9790665.63                          | 320.85                        | -81.40                           |
| 1205 | 27.469334 | 151.396500 | 359.6       | 9790666.88                          | 319.66                        | -82.61                           |
| 1211 | 27.472668 | 151.395828 | 360.0       | 9790666.88                          | 319.18                        | -83.60                           |
| 1217 | 27.475834 | 151.395340 | 360.0       | 9790666.88                          | 316.68                        | -86.10                           |
| 1223 | 27.479000 | 151.394836 | 359.9       | 9790666.25                          | 313.24                        | -89.42                           |
| 1229 | 27.482166 | 151.394333 | 360.2       | 9790667.50                          | 312.89                        | -90.10                           |
| 1235 | 27.485500 | 151.393661 | 360.0       | 9790670.63                          | 313.31                        | -89.38                           |
| 1241 | 27.488667 | 151.393173 | 359.8       | 9790672.50                          | 312.34                        | -90.22                           |
| 1247 | 27.491833 | 151.392670 | 359.9       | 9790674.38                          | 311.84                        | -90.77                           |
| 1253 | 27.495001 | 151.392166 | 360.0       | 9790676.25                          | 311.46                        | -91.24                           |
| 1259 | 27.498333 | 151.391663 | 360.1       | 9790677.50                          | 309.90                        | -92.91                           |
| 1265 | 27.501499 | 151.391006 | 360.2       | 9790678.75                          | 309.08                        | -93.89                           |
| 1271 | 27.504667 | 151.390503 | 360.9       | 9790679.38                          | 309.21                        | -94.49                           |
| 1277 | 27.507833 | 151.389999 | 361.2       | 9790679.38                          | 308.47                        | -95.63                           |
| 1283 | 27.511168 | 151.389496 | 361.5       | 9790678.75                          | 306.06                        | -98.31                           |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1289 | 27.514334 | 151.389008 | 361.8       | 9790678.75                         | 304.73                       | -100.06                         |
| 1293 | 27.516500 | 151.388504 | 362.2       | 9790679.38                         | 305.34                       | -99.90                          |
| 1299 | 27.519667 | 151.388000 | 362.7       | 9790678.13                         | 303.70                       | -102.08                         |
| 1305 | 27.522833 | 151.387497 | 363.1       | 9790677.50                         | 301.84                       | -104.39                         |
| 1311 | 27.526167 | 151.386993 | 363.6       | 9790677.50                         | 300.70                       | -106.03                         |
| 1317 | 27.529333 | 151.386505 | 364.0       | 9790678.75                         | 300.77                       | -106.43                         |
| 1323 | 27.532499 | 151.386002 | 364.0       | 9790681.25                         | 301.37                       | -105.83                         |
| 1329 | 27.535667 | 151.385330 | 364.4       | 9790682.50                         | 301.41                       | -106.25                         |
| 1335 | 27.539000 | 151.384827 | 364.6       | 9790683.13                         | 300.19                       | -107.71                         |
| 1341 | 27.542168 | 151.384338 | 364.8       | 9790683.13                         | 298.37                       | -109.78                         |
| 1347 | 27.545334 | 151.383835 | 365.1       | 9790686.25                         | 300.57                       | -107.92                         |
| 1353 | 27.548668 | 151.383331 | 365.9       | 9790685.63                         | 299.73                       | -109.59                         |
| 1359 | 27.552000 | 151.383163 | 366.2       | 9790687.50                         | 298.81                       | -110.86                         |
| 1361 | 27.552999 | 151.383163 | 366.2       | 9790687.50                         | 298.94                       | -110.78                         |

### Traverse 17

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 986  | 27.515333 | 151.380173 | 362.2       | 9790668.75                         | 295.97                       | -109.27                         |
| 992  | 27.515833 | 151.383835 | 362.2       | 9790673.13                         | 299.09                       | -106.15                         |
| 998  | 27.516333 | 151.387329 | 362.2       | 9790676.25                         | 302.22                       | -103.02                         |
| 1000 | 27.516500 | 151.388504 | 362.2       | 9790678.13                         | 304.09                       | -101.15                         |
| 1006 | 27.517000 | 151.392166 | 362.6       | 9790680.00                         | 306.99                       | -98.62                          |
| 1012 | 27.517500 | 151.395828 | 363.0       | 9790681.25                         | 308.37                       | -97.74                          |
| 1018 | 27.518000 | 151.399338 | 363.2       | 9790683.75                         | 311.58                       | -94.78                          |
| 1024 | 27.518333 | 151.403000 | 363.5       | 9790686.25                         | 314.82                       | -91.81                          |
| 1030 | 27.518833 | 151.406662 | 363.6       | 9790688.75                         | 317.22                       | -89.60                          |
| 1036 | 27.519333 | 151.410172 | 363.9       | 9790691.88                         | 321.00                       | -86.06                          |
| 1042 | 27.519833 | 151.413834 | 363.8       | 9790695.63                         | 324.65                       | -82.37                          |
| 1048 | 27.520332 | 151.417328 | 364.3       | 9790698.75                         | 329.17                       | -78.36                          |
| 1054 | 27.520832 | 151.421005 | 364.8       | 9790701.25                         | 331.87                       | -76.19                          |
| 1060 | 27.521334 | 151.424667 | 365.4       | 9790701.88                         | 334.47                       | -74.30                          |
| 1066 | 27.521833 | 151.428162 | 366.0       | 9790703.75                         | 338.16                       | -71.27                          |
| 1072 | 27.522333 | 151.431839 | 366.6       | 9790705.63                         | 340.73                       | -69.40                          |
| 1078 | 27.522833 | 151.435501 | 367.2       | 9790707.50                         | 344.49                       | -66.33                          |
| 1084 | 27.523333 | 151.438995 | 367.6       | 9790708.13                         | 346.41                       | -64.88                          |
| 1090 | 27.523832 | 151.442673 | 368.3       | 9790711.25                         | 350.20                       | -61.78                          |
| 1096 | 27.524166 | 151.446167 | 369.0       | 9790710.63                         | 351.80                       | -60.99                          |
| 1102 | 27.524668 | 151.449829 | 369.7       | 9790711.25                         | 354.71                       | -58.91                          |
| 1108 | 27.525167 | 151.453506 | 370.4       | 9790710.63                         | 354.96                       | -59.43                          |
| 1114 | 27.525667 | 151.457001 | 371.1       | 9790708.75                         | 355.37                       | -59.85                          |
| 1120 | 27.526167 | 151.460663 | 371.9       | 9790708.13                         | 357.06                       | -59.00                          |
| 1126 | 27.526667 | 151.464172 | 372.9       | 9790706.25                         | 356.87                       | -60.25                          |
| 1132 | 27.527000 | 151.467834 | 373.4       | 9790705.63                         | 357.81                       | -59.88                          |
| 1138 | 27.527500 | 151.471497 | 374.1       | 9790705.00                         | 359.44                       | -59.06                          |
| 1144 | 27.528000 | 151.475006 | 374.9       | 9790704.38                         | 361.32                       | -58.10                          |
| 1150 | 27.528500 | 151.478668 | 375.9       | 9790701.88                         | 360.71                       | -59.84                          |
| 1156 | 27.528833 | 151.482330 | 376.9       | 9790700.00                         | 361.74                       | -59.86                          |
| 1162 | 27.529333 | 151.485840 | 377.3       | 9790699.38                         | 362.41                       | -59.66                          |
| 1168 | 27.529833 | 151.489502 | 378.1       | 9790697.50                         | 362.41                       | -60.57                          |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1174 | 27.530333 | 151.492996 | 379.2       | 9790696.88                         | 365.30                       | -58.95                          |
| 1180 | 27.530832 | 151.496674 | 380.2       | 9790692.50                         | 363.95                       | -61.40                          |
| 1186 | 27.531166 | 151.500336 | 381.1       | 9790690.00                         | 364.20                       | -62.15                          |
| 1192 | 27.531668 | 151.503830 | 381.8       | 9790686.88                         | 362.05                       | -65.11                          |
| 1198 | 27.532167 | 151.507507 | 383.1       | 9790683.75                         | 362.75                       | -65.79                          |
| 1204 | 27.532667 | 151.511169 | 386.5       | 9790674.38                         | 363.93                       | -68.44                          |
| 1210 | 27.533001 | 151.514664 | 391.1       | 9790663.75                         | 366.31                       | -71.23                          |
| 1216 | 27.533501 | 151.518326 | 389.2       | 9790666.25                         | 362.95                       | -72.46                          |
| 1222 | 27.534000 | 151.522003 | 388.1       | 9790665.63                         | 358.96                       | -75.23                          |
| 1228 | 27.534500 | 151.525497 | 388.5       | 9790663.13                         | 357.69                       | -76.95                          |
| 1234 | 27.535000 | 151.529160 | 389.3       | 9790658.75                         | 354.41                       | -81.08                          |
| 1240 | 27.535334 | 151.532669 | 390.3       | 9790653.75                         | 352.50                       | -84.11                          |
| 1246 | 27.535833 | 151.536331 | 391.7       | 9790646.88                         | 350.01                       | -88.19                          |
| 1252 | 27.536333 | 151.539993 | 393.9       | 9790639.38                         | 348.01                       | -92.63                          |
| 1257 | 27.537001 | 151.542831 | 396.0       | 9790631.88                         | 347.15                       | -95.90                          |
| 1264 | 27.538834 | 151.546494 | 401.3       | 9790622.50                         | 352.79                       | -96.16                          |
| 1270 | 27.540501 | 151.549667 | 403.7       | 9790622.50                         | 358.88                       | -92.73                          |
| 1276 | 27.542168 | 151.552826 | 404.3       | 9790620.63                         | 357.61                       | -94.67                          |
| 1282 | 27.543833 | 151.556000 | 408.2       | 9790613.13                         | 361.52                       | -95.12                          |
| 1288 | 27.545500 | 151.559006 | 411.4       | 9790606.25                         | 363.27                       | -96.95                          |
| 1294 | 27.546499 | 151.562500 | 412.2       | 9790608.13                         | 366.52                       | -94.66                          |
| 1302 | 27.547167 | 151.567337 | 406.8       | 9790615.63                         | 355.92                       | -99.15                          |
| 1308 | 27.547667 | 151.570831 | 402.3       | 9790621.88                         | 348.43                       | -101.65                         |
| 1314 | 27.548166 | 151.574493 | 401.9       | 9790621.25                         | 346.61                       | -103.05                         |
| 1320 | 27.548500 | 151.578171 | 402.0       | 9790616.88                         | 342.57                       | -107.20                         |
| 1326 | 27.549000 | 151.581665 | 403.7       | 9790613.75                         | 343.38                       | -108.27                         |
| 1332 | 27.549500 | 151.585327 | 404.3       | 9790610.63                         | 342.17                       | -110.18                         |
| 1338 | 27.549833 | 151.589005 | 408.1       | 9790601.25                         | 344.55                       | -112.06                         |
| 1344 | 27.550333 | 151.592499 | 409.3       | 9790598.75                         | 344.38                       | -113.53                         |
| 1350 | 27.550833 | 151.596161 | 407.8       | 9790600.63                         | 341.57                       | -114.64                         |
| 1356 | 27.551332 | 151.599838 | 408.6       | 9790595.00                         | 338.41                       | -118.69                         |
| 1362 | 27.551666 | 151.603333 | 409.5       | 9790594.38                         | 340.53                       | -117.57                         |
| 1368 | 27.552168 | 151.606995 | 410.0       | 9790593.13                         | 339.64                       | -119.04                         |
| 1372 | 27.552500 | 151.609329 | 410.1       | 9790595.63                         | 342.57                       | -116.27                         |
| 1378 | 27.552834 | 151.613007 | 416.0       | 9790598.75                         | 363.71                       | -101.66                         |
| 1383 | 27.554501 | 151.615173 | 414.4       | 9790590.63                         | 349.96                       | -113.59                         |
| 1389 | 27.557333 | 151.617172 | 414.0       | 9790595.00                         | 350.88                       | -112.33                         |
| 1395 | 27.560167 | 151.619003 | 415.6       | 9790597.50                         | 355.70                       | -109.26                         |
| 1401 | 27.562834 | 151.621002 | 417.3       | 9790596.25                         | 358.41                       | -108.43                         |
| 1407 | 27.565666 | 151.623001 | 418.3       | 9790600.00                         | 362.72                       | -105.24                         |
| 1413 | 27.568333 | 151.624832 | 424.2       | 9790592.50                         | 371.70                       | -102.91                         |
| 1419 | 27.571167 | 151.626831 | 422.7       | 9790601.88                         | 373.73                       | -99.12                          |
| 1425 | 27.573833 | 151.628830 | 423.0       | 9790606.25                         | 377.79                       | -95.40                          |
| 1431 | 27.576500 | 151.630829 | 426.2       | 9790604.38                         | 383.32                       | -93.46                          |
| 1437 | 27.579000 | 151.633163 | 428.4       | 9790601.88                         | 385.73                       | -93.51                          |
| 1443 | 27.581499 | 151.635498 | 430.4       | 9790601.25                         | 390.21                       | -91.33                          |
| 1449 | 27.584000 | 151.637833 | 436.6       | 9790593.13                         | 398.66                       | -89.80                          |
| 1453 | 27.585667 | 151.639328 | 439.2       | 9790588.75                         | 400.97                       | -90.37                          |
| 1456 | 27.587000 | 151.640503 | 440.1       | 9790588.13                         | 401.87                       | -90.47                          |
| 1461 | 27.588667 | 151.642838 | 440.5       | 9790587.50                         | 402.04                       | -90.82                          |
| 1467 | 27.590500 | 151.645828 | 435.8       | 9790600.00                         | 398.75                       | -88.84                          |
| 1473 | 27.592501 | 151.648666 | 436.6       | 9790603.75                         | 403.69                       | -84.78                          |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1479 | 27.594500 | 151.651672 | 441.4       | 9790597.50                         | 409.51                       | -84.25                          |
| 1485 | 27.596333 | 151.654495 | 440.7       | 9790596.88                         | 405.59                       | -87.42                          |
| 1489 | 27.597668 | 151.656494 | 443.2       | 9790595.00                         | 410.09                       | -85.68                          |
| 1495 | 27.599667 | 151.659332 | 442.1       | 9790593.13                         | 403.60                       | -90.95                          |
| 1502 | 27.601833 | 151.662674 | 445.2       | 9790593.13                         | 412.51                       | -85.50                          |
| 1508 | 27.603167 | 151.672165 | 448.1       | 9790582.50                         | 409.87                       | -91.49                          |
| 1514 | 27.604334 | 151.680328 | 454.3       | 9790566.25                         | 411.31                       | -96.91                          |
| 1520 | 27.605000 | 151.681503 | 458.3       | 9790555.63                         | 413.09                       | -99.63                          |
| 1526 | 27.605667 | 151.682831 | 463.4       | 9790539.38                         | 411.33                       | -107.10                         |
| 1531 | 27.606167 | 151.683838 | 468.2       | 9790525.63                         | 412.46                       | -111.37                         |
| 1537 | 27.606833 | 151.684998 | 473.5       | 9790518.13                         | 421.16                       | -108.54                         |
| 1543 | 27.607500 | 151.686340 | 478.6       | 9790506.25                         | 423.80                       | -111.61                         |
| 1549 | 27.608667 | 151.689667 | 487.9       | 9790488.13                         | 433.19                       | -112.65                         |
| 1555 | 27.608833 | 151.693329 | 493.5       | 9790472.50                         | 434.69                       | -117.36                         |
| 1561 | 27.608833 | 151.697174 | 505.6       | 9790445.63                         | 445.37                       | -120.29                         |
| 1562 | 27.608833 | 151.697662 | 506.6       | 9790438.75                         | 441.46                       | -125.28                         |
| 1568 | 27.611168 | 151.700333 | 516.6       | 9790423.75                         | 456.16                       | -121.79                         |
| 1574 | 27.613333 | 151.702835 | 520.6       | 9790423.13                         | 465.89                       | -116.50                         |
| 1580 | 27.615667 | 151.705505 | 530.0       | 9790414.38                         | 484.95                       | -107.97                         |
| 1586 | 27.618000 | 151.707993 | 547.3       | 9790378.13                         | 499.75                       | -112.59                         |
| 1592 | 27.620333 | 151.710495 | 558.9       | 9790353.75                         | 509.73                       | -115.51                         |
| 1598 | 27.622499 | 151.713165 | 589.8       | 9790292.50                         | 542.62                       | -117.20                         |
| 1604 | 27.624666 | 151.715836 | 585.5       | 9790310.00                         | 545.04                       | -110.00                         |
| 1610 | 27.625334 | 151.719498 | 587.5       | 9790299.38                         | 540.53                       | -116.73                         |
| 1616 | 27.625834 | 151.723160 | 585.8       | 9790301.88                         | 536.37                       | -118.92                         |
| 1619 | 27.625999 | 151.724838 | 588.2       | 9790293.75                         | 535.87                       | -122.19                         |
| 1627 | 27.628166 | 151.729172 | 576.2       | 9790314.38                         | 518.09                       | -126.50                         |
| 1629 | 27.628668 | 151.730164 | 572.5       | 9790321.25                         | 513.61                       | -126.86                         |
| 1637 | 27.627167 | 151.734665 | 565.6       | 9790325.63                         | 497.82                       | -134.89                         |
| 1643 | 27.625999 | 151.738007 | 551.8       | 9790348.75                         | 478.45                       | -138.86                         |
| 1649 | 27.624832 | 151.741501 | 566.0       | 9790311.25                         | 486.14                       | -147.09                         |
| 1652 | 27.624166 | 151.743164 | 569.8       | 9790300.00                         | 487.03                       | -150.38                         |
| 1658 | 27.625334 | 151.746506 | 558.0       | 9790323.13                         | 473.08                       | -151.11                         |
| 1664 | 27.626499 | 151.750000 | 545.2       | 9790345.63                         | 454.93                       | -154.98                         |
| 1670 | 27.627501 | 151.753494 | 534.3       | 9790365.00                         | 439.63                       | -158.16                         |
| 1676 | 27.628668 | 151.756836 | 540.5       | 9790355.63                         | 449.08                       | -155.54                         |
| 1682 | 27.629833 | 151.760330 | 545.2       | 9790338.75                         | 445.58                       | -164.34                         |
| 1688 | 27.630833 | 151.763672 | 541.4       | 9790343.75                         | 437.73                       | -167.99                         |
| 1694 | 27.632000 | 151.767166 | 537.7       | 9790345.00                         | 427.44                       | -174.09                         |
| 1700 | 27.633167 | 151.770660 | 535.1       | 9790348.75                         | 421.91                       | -176.71                         |
| 1706 | 27.634167 | 151.774002 | 533.6       | 9790352.50                         | 419.81                       | -177.14                         |
| 1712 | 27.635332 | 151.777496 | 534.6       | 9790354.38                         | 424.03                       | -174.00                         |
| 1718 | 27.636499 | 151.780838 | 527.7       | 9790371.88                         | 420.33                       | -170.02                         |
| 1724 | 27.637501 | 151.784332 | 524.3       | 9790375.63                         | 412.49                       | -174.11                         |
| 1730 | 27.638666 | 151.787674 | 524.5       | 9790380.00                         | 416.23                       | -170.59                         |
| 1736 | 27.639833 | 151.791168 | 524.2       | 9790382.50                         | 417.68                       | -168.76                         |
| 1742 | 27.640833 | 151.794662 | 522.7       | 9790383.13                         | 412.30                       | -172.41                         |
| 1748 | 27.642000 | 151.798004 | 523.2       | 9790389.38                         | 419.03                       | -166.31                         |
| 1754 | 27.643000 | 151.801498 | 525.4       | 9790388.75                         | 425.23                       | -162.59                         |
| 1760 | 27.643999 | 151.804840 | 525.3       | 9790387.50                         | 422.33                       | -165.34                         |
| 1766 | 27.645166 | 151.808167 | 525.2       | 9790403.13                         | 436.33                       | -151.20                         |
| 1772 | 27.646168 | 151.811661 | 521.5       | 9790399.38                         | 421.29                       | -162.15                         |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1778 | 27.647499 | 151.814835 | 518.6       | 9790410.00                         | 421.68                       | -158.50                         |
| 1784 | 27.649166 | 151.818161 | 522.0       | 9790404.38                         | 426.05                       | -157.99                         |
| 1790 | 27.650833 | 151.821335 | 526.2       | 9790397.50                         | 430.76                       | -157.93                         |
| 1796 | 27.652332 | 151.824493 | 526.5       | 9790398.75                         | 431.81                       | -157.26                         |
| 1801 | 27.653667 | 151.827164 | 528.4       | 9790399.38                         | 436.89                       | -154.24                         |
| 1807 | 27.654333 | 151.830826 | 529.0       | 9790399.38                         | 437.37                       | -154.39                         |
| 1813 | 27.654833 | 151.834503 | 533.2       | 9790390.63                         | 441.64                       | -154.84                         |
| 1819 | 27.655333 | 151.837997 | 533.1       | 9790407.50                         | 458.36                       | -138.06                         |
| 1825 | 27.655832 | 151.841660 | 537.9       | 9790388.13                         | 452.58                       | -149.23                         |
| 1831 | 27.656334 | 151.845337 | 541.0       | 9790384.38                         | 458.43                       | -146.86                         |
| 1837 | 27.656834 | 151.848831 | 534.5       | 9790400.63                         | 454.34                       | -143.57                         |
| 1843 | 27.657333 | 151.852493 | 536.3       | 9790398.75                         | 457.02                       | -143.00                         |
| 1848 | 27.657667 | 151.855499 | 535.4       | 9790401.25                         | 456.65                       | -142.33                         |
| 1854 | 27.658167 | 151.858994 | 535.9       | 9790401.88                         | 458.91                       | -140.66                         |
| 1860 | 27.658667 | 151.862671 | 539.2       | 9790396.88                         | 464.00                       | -139.23                         |
| 1866 | 27.659166 | 151.866333 | 544.7       | 9790387.50                         | 471.01                       | -138.39                         |
| 1872 | 27.659666 | 151.869827 | 535.2       | 9790410.63                         | 464.66                       | -134.05                         |
| 1878 | 27.660168 | 151.873505 | 532.9       | 9790411.25                         | 458.40                       | -137.81                         |
| 1884 | 27.660667 | 151.877167 | 530.9       | 9790416.88                         | 456.54                       | -137.41                         |
| 1890 | 27.661167 | 151.880661 | 525.8       | 9790425.63                         | 449.43                       | -138.77                         |
| 1896 | 27.661667 | 151.884338 | 522.5       | 9790435.00                         | 448.84                       | -135.75                         |
| 1902 | 27.662167 | 151.887833 | 526.5       | 9790423.75                         | 448.62                       | -140.42                         |
| 1908 | 27.662666 | 151.891495 | 552.8       | 9790375.00                         | 481.03                       | -137.43                         |
| 1915 | 27.663334 | 151.895660 | 565.4       | 9790346.25                         | 491.07                       | -141.46                         |
| 1921 | 27.663834 | 151.899338 | 566.2       | 9790338.13                         | 484.14                       | -149.28                         |
| 1927 | 27.664333 | 151.903000 | 568.8       | 9790333.75                         | 487.69                       | -148.60                         |
| 1933 | 27.664833 | 151.906494 | 573.6       | 9790322.50                         | 491.26                       | -150.40                         |
| 1939 | 27.665333 | 151.910172 | 557.9       | 9790356.88                         | 475.99                       | -148.12                         |
| 1945 | 27.665833 | 151.913834 | 536.1       | 9790404.38                         | 456.28                       | -143.47                         |
| 1951 | 27.666332 | 151.917328 | 556.5       | 9790364.38                         | 479.30                       | -143.30                         |
| 1957 | 27.666332 | 151.921005 | 571.7       | 9790333.13                         | 494.86                       | -144.71                         |
| 1959 | 27.666166 | 151.922165 | 577.4       | 9790323.13                         | 502.48                       | -143.47                         |

# Mitchell Area:

## Traverse 18

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 940  | 27.190666 | 148.291504 | 286.8       | 9790467.50                         | 101.31                       | -219.54                         |
| 946  | 27.187500 | 148.291840 | 288.1       | 9790463.75                         | 103.42                       | -218.87                         |
| 952  | 27.184168 | 148.292328 | 289.0       | 9790460.00                         | 105.10                       | -218.26                         |
| 958  | 27.181000 | 148.292664 | 291.1       | 9790453.75                         | 107.68                       | -217.97                         |
| 964  | 27.177834 | 148.292999 | 292.4       | 9790445.63                         | 106.03                       | -221.06                         |
| 970  | 27.174500 | 148.293503 | 293.8       | 9790437.50                         | 104.20                       | -224.50                         |
| 976  | 27.171333 | 148.293839 | 297.7       | 9790422.50                         | 103.76                       | -229.30                         |
| 982  | 27.168167 | 148.294174 | 300.0       | 9790415.63                         | 106.36                       | -229.23                         |
| 988  | 27.164833 | 148.294495 | 301.3       | 9790408.75                         | 105.34                       | -231.70                         |
| 994  | 27.161667 | 148.294998 | 303.3       | 9790400.63                         | 105.92                       | -233.37                         |
| 1000 | 27.158333 | 148.295334 | 299.7       | 9790402.50                         | 99.19                        | -236.07                         |
| 1006 | 27.155167 | 148.295837 | 299.5       | 9790399.38                         | 97.98                        | -237.07                         |
| 1011 | 27.152500 | 148.296173 | 301.6       | 9790391.25                         | 98.27                        | -239.15                         |
| 1018 | 27.148832 | 148.296829 | 308.2       | 9790371.88                         | 101.73                       | -243.06                         |
| 1024 | 27.145500 | 148.297333 | 312.2       | 9790358.13                         | 102.70                       | -246.52                         |
| 1030 | 27.142332 | 148.297836 | 312.6       | 9790355.00                         | 103.34                       | -246.34                         |
| 1036 | 27.139168 | 148.298340 | 317.9       | 9790336.88                         | 103.57                       | -252.09                         |
| 1042 | 27.135834 | 148.298828 | 323.2       | 9790321.88                         | 107.36                       | -254.20                         |
| 1048 | 27.132668 | 148.299332 | 327.1       | 9790310.00                         | 110.06                       | -255.88                         |
| 1051 | 27.131001 | 148.299500 | 328.9       | 9790303.75                         | 110.61                       | -257.34                         |
| 1054 | 27.129499 | 148.299835 | 328.6       | 9790303.13                         | 110.34                       | -257.29                         |
| 1060 | 27.126167 | 148.300339 | 323.6       | 9790309.38                         | 103.13                       | -258.94                         |
| 1066 | 27.122999 | 148.300827 | 325.8       | 9790301.88                         | 104.64                       | -259.79                         |
| 1072 | 27.119833 | 148.301163 | 326.9       | 9790295.00                         | 103.91                       | -261.84                         |
| 1078 | 27.116501 | 148.301666 | 325.9       | 9790291.88                         | 99.54                        | -265.08                         |
| 1084 | 27.113333 | 148.302170 | 332.0       | 9790275.63                         | 104.49                       | -266.91                         |
| 1090 | 27.110167 | 148.302673 | 337.6       | 9790260.63                         | 109.30                       | -268.37                         |
| 1096 | 27.106833 | 148.303162 | 335.2       | 9790261.88                         | 106.30                       | -268.70                         |
| 1102 | 27.103666 | 148.303665 | 327.1       | 9790275.00                         | 96.90                        | -269.03                         |
| 1108 | 27.100500 | 148.304001 | 325.3       | 9790273.75                         | 92.66                        | -271.28                         |
| 1114 | 27.097166 | 148.304504 | 327.6       | 9790265.63                         | 94.22                        | -272.32                         |
| 1120 | 27.094000 | 148.304993 | 329.6       | 9790258.13                         | 94.80                        | -273.99                         |
| 1126 | 27.090834 | 148.305496 | 327.6       | 9790258.75                         | 91.75                        | -274.80                         |
| 1132 | 27.087500 | 148.305832 | 326.3       | 9790258.13                         | 89.52                        | -275.54                         |
| 1138 | 27.084333 | 148.306335 | 329.3       | 9790248.75                         | 91.75                        | -276.61                         |
| 1141 | 27.082666 | 148.306503 | 331.6       | 9790241.88                         | 92.75                        | -278.24                         |
| 1144 | 27.081167 | 148.306839 | 333.4       | 9790236.88                         | 94.47                        | -278.51                         |
| 1150 | 27.077833 | 148.307159 | 333.2       | 9790232.50                         | 91.97                        | -280.78                         |
| 1156 | 27.074833 | 148.308167 | 335.3       | 9790226.88                         | 95.21                        | -279.85                         |
| 1162 | 27.071667 | 148.309174 | 338.6       | 9790216.88                         | 98.14                        | -280.70                         |
| 1168 | 27.068501 | 148.309662 | 343.6       | 9790200.00                         | 98.41                        | -285.96                         |
| 1174 | 27.065166 | 148.309998 | 349.9       | 9790185.00                         | 105.45                       | -286.01                         |
| 1180 | 27.062000 | 148.310501 | 352.3       | 9790175.63                         | 104.82                       | -289.35                         |
| 1186 | 27.058832 | 148.311005 | 353.0       | 9790171.88                         | 105.67                       | -289.26                         |
| 1192 | 27.055500 | 148.311340 | 352.6       | 9790170.63                         | 105.03                       | -289.45                         |
| 1198 | 27.052334 | 148.311829 | 349.3       | 9790173.75                         | 100.29                       | -290.43                         |
| 1204 | 27.049168 | 148.312164 | 347.6       | 9790172.50                         | 96.44                        | -292.43                         |
| 1210 | 27.045834 | 148.312668 | 346.5       | 9790173.13                         | 96.08                        | -291.52                         |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1216 | 27.042667 | 148.313171 | 344.3       | 9790175.00                         | 93.20                        | -292.00                         |
| 1219 | 27.041000 | 148.313339 | 344.0       | 9790173.75                         | 92.33                        | -292.56                         |
| 1222 | 27.039333 | 148.313507 | 342.4       | 9790175.63                         | 90.37                        | -292.68                         |
| 1228 | 27.036167 | 148.313995 | 343.9       | 9790170.00                         | 91.99                        | -292.77                         |
| 1234 | 27.033001 | 148.314499 | 345.6       | 9790164.38                         | 93.40                        | -293.24                         |
| 1240 | 27.029667 | 148.314835 | 344.2       | 9790162.50                         | 89.58                        | -295.44                         |
| 1246 | 27.026501 | 148.315338 | 341.1       | 9790165.63                         | 85.91                        | -295.74                         |
| 1252 | 27.023333 | 148.315674 | 339.1       | 9790164.38                         | 80.71                        | -298.60                         |
| 1258 | 27.020000 | 148.316162 | 340.9       | 9790156.25                         | 80.02                        | -301.31                         |
| 1264 | 27.016832 | 148.316666 | 343.6       | 9790146.88                         | 81.75                        | -302.70                         |
| 1270 | 27.013666 | 148.317001 | 345.5       | 9790140.00                         | 83.09                        | -303.43                         |
| 1276 | 27.010332 | 148.317505 | 347.1       | 9790133.75                         | 84.31                        | -304.02                         |
| 1282 | 27.007168 | 148.317841 | 347.6       | 9790130.63                         | 84.48                        | -304.36                         |
| 1288 | 27.004000 | 148.318329 | 343.2       | 9790136.25                         | 79.15                        | -304.81                         |
| 1294 | 27.000668 | 148.318665 | 342.0       | 9790133.13                         | 74.91                        | -307.74                         |
| 1300 | 26.997499 | 148.319168 | 339.4       | 9790134.38                         | 69.86                        | -309.83                         |
| 1306 | 26.994167 | 148.319504 | 337.5       | 9790133.75                         | 65.78                        | -311.75                         |
| 1312 | 26.990999 | 148.320007 | 339.9       | 9790124.38                         | 66.40                        | -313.84                         |
| 1318 | 26.987833 | 148.320496 | 343.1       | 9790112.50                         | 66.87                        | -316.94                         |
| 1324 | 26.984501 | 148.320831 | 346.4       | 9790102.50                         | 68.90                        | -318.60                         |
| 1329 | 26.981833 | 148.321167 | 352.2       | 9790088.75                         | 75.67                        | -318.36                         |
| 1336 | 26.978167 | 148.321503 | 358.5       | 9790068.13                         | 76.86                        | -324.17                         |
| 1342 | 26.974833 | 148.321671 | 352.3       | 9790077.50                         | 69.57                        | -324.51                         |
| 1348 | 26.971666 | 148.321838 | 344.4       | 9790090.63                         | 60.41                        | -324.91                         |
| 1354 | 26.968332 | 148.322174 | 338.4       | 9790098.75                         | 52.27                        | -326.25                         |
| 1360 | 26.965166 | 148.322327 | 333.8       | 9790104.38                         | 46.45                        | -327.02                         |
| 1366 | 26.961832 | 148.322495 | 331.9       | 9790105.00                         | 43.46                        | -327.79                         |
| 1372 | 26.958668 | 148.322830 | 333.4       | 9790098.13                         | 43.37                        | -329.66                         |
| 1378 | 26.955334 | 148.322998 | 336.4       | 9790087.50                         | 45.54                        | -330.77                         |
| 1383 | 26.952667 | 148.323166 | 337.2       | 9790081.88                         | 43.66                        | -333.55                         |
| 1390 | 26.948833 | 148.323502 | 332.4       | 9790086.88                         | 37.10                        | -334.79                         |
| 1396 | 26.945667 | 148.323669 | 326.6       | 9790096.25                         | 31.07                        | -334.33                         |
| 1402 | 26.942499 | 148.323837 | 330.9       | 9790081.88                         | 32.25                        | -337.88                         |
| 1408 | 26.939167 | 148.324005 | 341.4       | 9790054.38                         | 39.09                        | -342.81                         |
| 1413 | 26.936501 | 148.324173 | 358.8       | 9790010.63                         | 50.51                        | -350.94                         |
| 1418 | 26.933832 | 148.324493 | 347.2       | 9790034.38                         | 40.77                        | -347.63                         |
| 1420 | 26.932667 | 148.324493 | 342.8       | 9790044.38                         | 38.51                        | -344.99                         |
| 1426 | 26.929501 | 148.324661 | 336.6       | 9790055.63                         | 33.09                        | -343.46                         |
| 1432 | 26.926167 | 148.324997 | 333.1       | 9790058.75                         | 27.26                        | -345.37                         |
| 1438 | 26.923000 | 148.325165 | 327.3       | 9790068.75                         | 21.80                        | -344.32                         |
| 1444 | 26.919666 | 148.325333 | 322.1       | 9790075.63                         | 15.16                        | -345.15                         |
| 1450 | 26.916500 | 148.325668 | 319.2       | 9790077.50                         | 10.61                        | -346.46                         |
| 1456 | 26.913168 | 148.325836 | 317.0       | 9790076.88                         | 05.29                        | -349.40                         |
| 1462 | 26.910000 | 148.326004 | 314.8       | 9790078.13                         | 02.04                        | -350.12                         |
| 1468 | 26.906668 | 148.326172 | 312.1       | 9790079.38                         | -02.48                       | -351.64                         |
| 1474 | 26.903500 | 148.326508 | 312.1       | 9790075.63                         | -03.64                       | -352.83                         |
| 1480 | 26.900333 | 148.326660 | 315.3       | 9790064.38                         | -03.36                       | -356.05                         |
| 1482 | 26.899166 | 148.326828 | 316.3       | 9790060.63                         | -02.65                       | -356.50                         |
| 1486 | 26.898001 | 148.328827 | 319.1       | 9790053.75                         | -00.85                       | -357.85                         |
| 1492 | 26.896334 | 148.331833 | 314.5       | 9790063.13                         | -04.33                       | -356.21                         |
| 1498 | 26.894501 | 148.335007 | 314.7       | 9790061.88                         | -02.65                       | -354.69                         |
| 1504 | 26.892834 | 148.337997 | 314.5       | 9790061.88                         | -02.05                       | -353.85                         |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1510 | 26.891167 | 148.341003 | 316.7       | 9790055.00                         | -01.29                       | -355.64                         |
| 1516 | 26.889334 | 148.344162 | 313.1       | 9790063.13                         | -03.02                       | -353.34                         |
| 1522 | 26.887667 | 148.347168 | 311.4       | 9790066.25                         | -04.14                       | -352.47                         |
| 1529 | 26.885668 | 148.350830 | 309.4       | 9790069.38                         | -05.79                       | -351.93                         |
| 1534 | 26.884167 | 148.353333 | 309.6       | 9790067.50                         | -05.86                       | -352.20                         |
| 1540 | 26.882500 | 148.356339 | 309.5       | 9790067.50                         | -04.88                       | -351.13                         |
| 1546 | 26.880833 | 148.359497 | 312.9       | 9790058.75                         | -01.80                       | -351.88                         |
| 1552 | 26.879000 | 148.362503 | 315.8       | 9790052.50                         | 02.18                        | -351.16                         |
| 1558 | 26.877333 | 148.365662 | 319.7       | 9790043.75                         | 05.97                        | -351.69                         |
| 1564 | 26.875500 | 148.368668 | 324.0       | 9790033.13                         | 09.71                        | -352.70                         |
| 1570 | 26.873833 | 148.371826 | 332.6       | 9790011.88                         | 16.56                        | -355.59                         |
| 1573 | 26.872999 | 148.373337 | 339.1       | 9789996.88                         | 22.65                        | -356.69                         |
| 1576 | 26.871500 | 148.374161 | 332.1       | 9790009.38                         | 14.80                        | -356.71                         |
| 1578 | 26.870501 | 148.374664 | 328.2       | 9790016.88                         | 11.48                        | -355.65                         |
| 1585 | 26.866833 | 148.373840 | 332.0       | 9790002.50                         | 10.89                        | -360.56                         |
| 1588 | 26.865168 | 148.373840 | 330.5       | 9790001.88                         | 06.74                        | -362.98                         |
| 1594 | 26.862000 | 148.373672 | 328.6       | 9790003.13                         | 04.65                        | -362.95                         |
| 1600 | 26.858667 | 148.373505 | 328.2       | 9790001.25                         | 04.17                        | -363.03                         |
| 1606 | 26.855499 | 148.373337 | 329.1       | 9789995.63                         | 03.88                        | -364.35                         |
| 1612 | 26.852167 | 148.373337 | 326.4       | 9789997.50                         | -00.76                       | -365.95                         |
| 1618 | 26.849001 | 148.373169 | 324.3       | 9789998.13                         | -04.30                       | -367.07                         |
| 1624 | 26.845667 | 148.373001 | 322.0       | 9789998.75                         | -08.28                       | -368.47                         |
| 1630 | 26.842501 | 148.372833 | 326.1       | 9789986.25                         | -06.16                       | -370.97                         |
| 1635 | 26.839666 | 148.372665 | 329.9       | 9789974.38                         | -03.96                       | -372.97                         |
| 1642 | 26.836166 | 148.371506 | 323.6       | 9789985.63                         | -09.46                       | -371.50                         |
| 1648 | 26.833000 | 148.370667 | 323.7       | 9789981.25                         | -11.03                       | -373.18                         |
| 1654 | 26.829832 | 148.369659 | 321.0       | 9789983.75                         | -14.93                       | -374.07                         |
| 1660 | 26.826668 | 148.369507 | 315.4       | 9789994.38                         | -19.21                       | -372.04                         |
| 1663 | 26.825167 | 148.369827 | 317.7       | 9789988.75                         | -16.33                       | -371.79                         |
| 1666 | 26.823500 | 148.369827 | 318.5       | 9789985.63                         | -15.98                       | -372.25                         |
| 1672 | 26.820333 | 148.369507 | 322.6       | 9789972.50                         | -13.77                       | -374.69                         |
| 1678 | 26.816999 | 148.369339 | 332.1       | 9789950.00                         | -04.99                       | -376.57                         |
| 1684 | 26.814167 | 148.367493 | 338.1       | 9789933.75                         | -00.37                       | -378.62                         |
| 1690 | 26.811333 | 148.367004 | 343.1       | 9789920.63                         | 03.09                        | -380.71                         |
| 1696 | 26.808167 | 148.368164 | 345.0       | 9789913.75                         | 04.61                        | -381.33                         |
| 1702 | 26.805000 | 148.369171 | 346.8       | 9789908.13                         | 06.51                        | -381.48                         |
| 1708 | 26.802168 | 148.371002 | 347.1       | 9789898.75                         | 00.46                        | -387.82                         |
| 1714 | 26.799000 | 148.371002 | 346.5       | 9789898.75                         | 01.27                        | -386.41                         |
| 1720 | 26.795668 | 148.371002 | 342.7       | 9789907.50                         | 00.79                        | -382.63                         |
| 1726 | 26.792500 | 148.370834 | 339.0       | 9789902.50                         | -14.00                       | -393.19                         |
| 1732 | 26.789167 | 148.370834 | 335.3       | 9789917.50                         | -07.86                       | -382.93                         |
| 1738 | 26.785999 | 148.370834 | 335.2       | 9789916.88                         | -06.32                       | -381.27                         |
| 1744 | 26.782667 | 148.370834 | 333.4       | 9789919.38                         | -07.50                       | -380.44                         |
| 1750 | 26.779499 | 148.370834 | 329.7       | 9789925.63                         | -10.14                       | -378.95                         |
| 1756 | 26.776167 | 148.370834 | 332.3       | 9789917.50                         | -07.55                       | -379.34                         |
| 1762 | 26.773001 | 148.370834 | 337.2       | 9789905.00                         | -02.62                       | -379.82                         |
| 1768 | 26.769667 | 148.370834 | 342.9       | 9789905.63                         | 17.63                        | -366.01                         |
| 1770 | 26.768667 | 148.370834 | 346.5       | 9789881.25                         | 05.58                        | -382.07                         |
| 1774 | 26.766500 | 148.370667 | 347.6       | 9789877.50                         | 06.57                        | -382.35                         |
| 1780 | 26.763166 | 148.370667 | 348.3       | 9789874.38                         | 07.95                        | -381.69                         |
| 1786 | 26.760000 | 148.370667 | 353.0       | 9789862.50                         | 13.08                        | -381.82                         |
| 1792 | 26.756666 | 148.370667 | 345.5       | 9789877.50                         | 08.18                        | -378.37                         |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1798 | 26.753500 | 148.370667 | 352.6       | 9789861.25                         | 16.13                        | -378.29                         |
| 1804 | 26.750168 | 148.370499 | 351.5       | 9789861.25                         | 15.20                        | -377.98                         |
| 1810 | 26.747000 | 148.370499 | 349.3       | 9789865.00                         | 14.16                        | -376.60                         |
| 1816 | 26.743668 | 148.370499 | 348.4       | 9789865.00                         | 13.79                        | -375.93                         |
| 1821 | 26.740999 | 148.370499 | 347.3       | 9789867.50                         | 14.33                        | -374.23                         |
| 1828 | 26.737167 | 148.370331 | 344.4       | 9789874.38                         | 15.88                        | -369.39                         |
| 1834 | 26.733999 | 148.370331 | 339.8       | 9789883.75                         | 12.87                        | -367.23                         |
| 1840 | 26.730667 | 148.370163 | 338.1       | 9789886.25                         | 12.88                        | -365.41                         |
| 1846 | 26.727501 | 148.370163 | 336.9       | 9789888.75                         | 14.05                        | -362.85                         |
| 1852 | 26.724333 | 148.369995 | 336.7       | 9789888.13                         | 14.77                        | -361.94                         |
| 1858 | 26.721001 | 148.369995 | 339.1       | 9789882.50                         | 18.87                        | -360.46                         |
| 1864 | 26.717833 | 148.369827 | 345.6       | 9789868.13                         | 27.18                        | -359.47                         |
| 1870 | 26.714500 | 148.369827 | 351.4       | 9789853.75                         | 33.08                        | -360.01                         |
| 1877 | 26.710667 | 148.369659 | 363.3       | 9789825.00                         | 43.14                        | -363.34                         |
| 1882 | 26.708000 | 148.369659 | 359.1       | 9789833.75                         | 41.40                        | -360.37                         |
| 1888 | 26.704832 | 148.369659 | 356.4       | 9789833.75                         | 35.57                        | -363.18                         |
| 1894 | 26.701500 | 148.369659 | 351.3       | 9789847.50                         | 35.93                        | -357.06                         |
| 1900 | 26.698334 | 148.369507 | 346.9       | 9789853.13                         | 29.97                        | -358.14                         |
| 1906 | 26.695000 | 148.369507 | 346.3       | 9789853.13                         | 30.56                        | -356.86                         |
| 1912 | 26.691833 | 148.369507 | 348.4       | 9789845.63                         | 32.07                        | -357.71                         |
| 1915 | 26.690166 | 148.369507 | 348.7       | 9789844.38                         | 32.90                        | -357.18                         |
| 1918 | 26.688667 | 148.368668 | 350.2       | 9789840.00                         | 34.59                        | -357.23                         |
| 1924 | 26.685833 | 148.366837 | 349.8       | 9789838.13                         | 33.08                        | -358.20                         |
| 1930 | 26.683001 | 148.365173 | 353.7       | 9789828.13                         | 36.64                        | -359.10                         |
| 1936 | 26.680166 | 148.363327 | 352.7       | 9789828.13                         | 35.99                        | -358.60                         |
| 1942 | 26.677334 | 148.361664 | 357.7       | 9789815.00                         | 40.68                        | -359.47                         |
| 1948 | 26.674168 | 148.361496 | 351.5       | 9789826.88                         | 35.38                        | -357.86                         |
| 1954 | 26.670834 | 148.361496 | 350.5       | 9789825.63                         | 33.36                        | -358.70                         |
| 1960 | 26.667667 | 148.361496 | 352.2       | 9789818.75                         | 34.42                        | -359.61                         |
| 1966 | 26.664333 | 148.361328 | 351.8       | 9789816.25                         | 32.62                        | -360.98                         |
| 1972 | 26.661167 | 148.361328 | 351.3       | 9789814.38                         | 31.55                        | -361.44                         |
| 1978 | 26.657833 | 148.361160 | 356.6       | 9789799.38                         | 35.34                        | -363.55                         |
| 1984 | 26.654667 | 148.361160 | 353.7       | 9789802.50                         | 32.08                        | -363.59                         |
| 1990 | 26.651333 | 148.361160 | 349.7       | 9789810.00                         | 29.08                        | -362.10                         |
| 1996 | 26.648167 | 148.360992 | 347.8       | 9789810.00                         | 25.87                        | -363.24                         |
| 2002 | 26.644833 | 148.360992 | 347.6       | 9789807.50                         | 25.10                        | -363.74                         |
| 2008 | 26.641666 | 148.360840 | 353.5       | 9789793.13                         | 31.46                        | -363.98                         |
| 2014 | 26.638332 | 148.360840 | 362.7       | 9789769.38                         | 38.04                        | -367.72                         |
| 2020 | 26.635166 | 148.360992 | 368.4       | 9789753.13                         | 42.01                        | -370.18                         |
| 2028 | 26.630833 | 148.360992 | 365.6       | 9789756.88                         | 40.87                        | -368.19                         |
| 2032 | 26.628834 | 148.362000 | 362.3       | 9789762.50                         | 37.49                        | -367.84                         |
| 2038 | 26.625668 | 148.362000 | 363.9       | 9789756.25                         | 37.93                        | -369.15                         |
| 2044 | 26.622334 | 148.362000 | 362.9       | 9789756.88                         | 38.16                        | -367.87                         |
| 2050 | 26.619167 | 148.362000 | 358.0       | 9789766.25                         | 34.88                        | -365.66                         |
| 2056 | 26.615833 | 148.361832 | 352.6       | 9789774.38                         | 28.22                        | -366.28                         |
| 2062 | 26.612667 | 148.361832 | 350.6       | 9789776.88                         | 27.08                        | -365.20                         |
| 2068 | 26.609333 | 148.361832 | 351.6       | 9789774.38                         | 30.13                        | -363.25                         |
| 2074 | 26.606167 | 148.361832 | 359.3       | 9789756.25                         | 38.24                        | -363.75                         |
| 2080 | 26.602833 | 148.361832 | 368.4       | 9789735.00                         | 46.76                        | -365.34                         |
| 2086 | 26.599667 | 148.361664 | 363.3       | 9789743.75                         | 42.42                        | -364.02                         |
| 2088 | 26.598499 | 148.361664 | 361.5       | 9789747.50                         | 41.99                        | -362.48                         |

# Traverse 19

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>( $\text{ums}^{-2}$ ) | F.A.<br>( $\text{ums}^{-2}$ ) | Bouguer<br>( $\text{ums}^{-2}$ ) |
|------|-----------|------------|-------------|-------------------------------------|-------------------------------|----------------------------------|
| 1000 | 27.134167 | 148.077835 | 282.1       | 9790348.13                          | 08.03                         | -307.55                          |
| 1006 | 27.134501 | 148.081497 | 281.8       | 9790349.38                          | 08.38                         | -306.87                          |
| 1012 | 27.134832 | 148.085175 | 285.0       | 9790345.00                          | 13.95                         | -304.91                          |
| 1018 | 27.135332 | 148.088669 | 289.1       | 9790338.13                          | 19.76                         | -303.70                          |
| 1024 | 27.135668 | 148.092331 | 289.5       | 9790340.63                          | 22.09                         | -301.76                          |
| 1030 | 27.136168 | 148.095993 | 292.1       | 9790335.00                          | 24.51                         | -302.26                          |
| 1036 | 27.136499 | 148.099503 | 295.0       | 9790328.75                          | 27.09                         | -302.88                          |
| 1042 | 27.136999 | 148.103165 | 300.5       | 9790319.38                          | 34.69                         | -301.43                          |
| 1048 | 27.137333 | 148.106674 | 304.3       | 9790313.75                          | 39.63                         | -300.77                          |
| 1055 | 27.137833 | 148.110992 | 307.0       | 9790309.38                          | 43.62                         | -299.82                          |
| 1060 | 27.138166 | 148.113998 | 306.4       | 9790315.63                          | 47.90                         | -294.83                          |
| 1066 | 27.138666 | 148.117493 | 302.6       | 9790327.50                          | 48.29                         | -290.27                          |
| 1072 | 27.139000 | 148.121170 | 298.6       | 9790338.13                          | 45.29                         | -288.78                          |
| 1078 | 27.139334 | 148.124832 | 296.1       | 9790339.38                          | 38.83                         | -292.45                          |
| 1084 | 27.139833 | 148.128326 | 292.9       | 9790349.38                          | 38.80                         | -288.85                          |
| 1090 | 27.140167 | 148.132004 | 290.3       | 9790356.88                          | 38.49                         | -286.32                          |
| 1096 | 27.140667 | 148.135498 | 288.7       | 9790360.00                          | 35.30                         | -287.67                          |
| 1102 | 27.141001 | 148.139160 | 288.7       | 9790358.75                          | 33.96                         | -288.98                          |
| 1108 | 27.141500 | 148.142838 | 286.5       | 9790364.38                          | 32.86                         | -287.65                          |
| 1114 | 27.141832 | 148.146332 | 286.1       | 9790365.00                          | 32.22                         | -287.83                          |
| 1120 | 27.142166 | 148.149994 | 285.6       | 9790366.25                          | 31.27                         | -288.21                          |
| 1126 | 27.142668 | 148.153503 | 286.0       | 9790365.00                          | 31.47                         | -288.53                          |
| 1132 | 27.143000 | 148.157166 | 287.0       | 9790363.75                          | 33.03                         | -287.99                          |
| 1138 | 27.143499 | 148.160828 | 287.2       | 9790363.13                          | 33.05                         | -288.20                          |
| 1144 | 27.143833 | 148.164337 | 285.6       | 9790365.00                          | 28.92                         | -290.61                          |
| 1150 | 27.144333 | 148.167999 | 287.0       | 9790363.75                          | 31.90                         | -289.16                          |
| 1156 | 27.144667 | 148.171661 | 285.7       | 9790367.50                          | 31.73                         | -287.91                          |
| 1162 | 27.145000 | 148.175171 | 286.4       | 9790370.00                          | 36.33                         | -284.07                          |
| 1168 | 27.145500 | 148.178833 | 286.6       | 9790369.38                          | 35.01                         | -285.59                          |
| 1174 | 27.145832 | 148.182327 | 288.1       | 9790368.13                          | 38.48                         | -283.83                          |
| 1180 | 27.146334 | 148.186005 | 289.1       | 9790367.50                          | 40.79                         | -282.59                          |
| 1186 | 27.146667 | 148.189667 | 289.2       | 9790370.00                          | 43.78                         | -279.78                          |
| 1192 | 27.146999 | 148.193161 | 291.3       | 9790367.50                          | 46.30                         | -279.53                          |
| 1198 | 27.147499 | 148.196838 | 292.6       | 9790365.63                          | 48.53                         | -278.79                          |
| 1204 | 27.147833 | 148.200500 | 294.5       | 9790364.38                          | 53.14                         | -276.30                          |
| 1210 | 27.148333 | 148.203995 | 294.6       | 9790363.75                          | 51.73                         | -277.88                          |
| 1216 | 27.148666 | 148.207672 | 295.4       | 9790361.88                          | 52.35                         | -278.16                          |
| 1222 | 27.149000 | 148.211166 | 298.7       | 9790360.00                          | 60.48                         | -273.67                          |
| 1228 | 27.149500 | 148.214828 | 305.5       | 9790347.50                          | 69.18                         | -272.65                          |
| 1234 | 27.149834 | 148.218506 | 310.9       | 9790335.00                          | 73.16                         | -274.65                          |
| 1239 | 27.150167 | 148.221497 | 311.8       | 9790336.25                          | 75.96                         | -272.86                          |
| 1246 | 27.150667 | 148.225662 | 314.0       | 9790333.13                          | 79.72                         | -271.59                          |
| 1252 | 27.150999 | 148.229340 | 315.8       | 9790332.50                          | 84.47                         | -268.80                          |
| 1258 | 27.151501 | 148.232834 | 318.7       | 9790330.00                          | 89.63                         | -266.86                          |
| 1264 | 27.151833 | 148.236496 | 323.1       | 9790320.63                          | 93.96                         | -267.50                          |
| 1270 | 27.152332 | 148.240005 | 330.9       | 9790305.63                          | 103.09                        | -267.12                          |
| 1276 | 27.152666 | 148.243668 | 329.5       | 9790311.88                          | 104.90                        | -263.70                          |
| 1282 | 27.153000 | 148.247330 | 328.2       | 9790328.75                          | 117.86                        | -249.32                          |
| 1288 | 27.153500 | 148.250839 | 318.1       | 9790343.13                          | 100.28                        | -255.54                          |
| 1294 | 27.153833 | 148.254501 | 318.8       | 9790344.38                          | 103.72                        | -252.89                          |

| SP   | Lat.      | Long.      | Elev<br>(m) | Obs. Grav.<br>(ums <sup>-2</sup> ) | F.A.<br>(ums <sup>-2</sup> ) | Bouguer<br>(ums <sup>-2</sup> ) |
|------|-----------|------------|-------------|------------------------------------|------------------------------|---------------------------------|
| 1301 | 27.154333 | 148.258667 | 332.9       | 9790313.13                         | 115.99                       | -256.40                         |
| 1306 | 27.154667 | 148.261673 | 327.1       | 9790330.00                         | 115.12                       | -250.84                         |
| 1312 | 27.155001 | 148.265335 | 324.1       | 9790338.75                         | 113.17                       | -249.36                         |
| 1318 | 27.155500 | 148.268829 | 325.4       | 9790337.50                         | 116.06                       | -247.98                         |
| 1324 | 27.155832 | 148.272507 | 314.7       | 9790363.75                         | 109.35                       | -242.74                         |
| 1330 | 27.156334 | 148.276169 | 307.2       | 9790383.75                         | 104.86                       | -238.80                         |
| 1336 | 27.156668 | 148.279663 | 300.6       | 9790398.75                         | 99.59                        | -236.72                         |
| 1342 | 27.157000 | 148.283340 | 296.5       | 9790407.50                         | 95.75                        | -236.00                         |
| 1348 | 27.157499 | 148.287003 | 295.6       | 9790406.25                         | 91.47                        | -239.18                         |
| 1354 | 27.157833 | 148.290497 | 299.3       | 9790404.38                         | 101.20                       | -233.66                         |
| 1360 | 27.158333 | 148.294174 | 298.1       | 9790409.38                         | 101.22                       | -232.29                         |
| 1362 | 27.158333 | 148.295334 | 299.7       | 9790406.25                         | 102.94                       | -232.32                         |
| 1366 | 27.158667 | 148.297668 | 303.3       | 9790400.00                         | 107.86                       | -231.45                         |
| 1372 | 27.159000 | 148.301331 | 307.3       | 9790393.75                         | 113.98                       | -229.81                         |
| 1378 | 27.159332 | 148.304993 | 311.7       | 9790394.38                         | 128.22                       | -220.51                         |
| 1384 | 27.159834 | 148.308502 | 316.5       | 9790375.00                         | 122.31                       | -231.75                         |
| 1390 | 27.160168 | 148.312164 | 324.8       | 9790358.13                         | 130.99                       | -232.34                         |
| 1396 | 27.160500 | 148.315826 | 321.0       | 9790366.25                         | 127.60                       | -231.55                         |
| 1402 | 27.160999 | 148.319336 | 323.4       | 9790365.00                         | 133.61                       | -228.18                         |
| 1404 | 27.160999 | 148.320663 | 325.2       | 9790361.25                         | 135.57                       | -228.29                         |

## APPENDIX 10

### Sercel SN368 Context Memory Settings

#### CONTEXT MEMORY ZONE = 0

| * ADDRESS | * MNEMO | * VALUE | ** | ADDRESS | * MNEMO | * VALUE | * |
|-----------|---------|---------|----|---------|---------|---------|---|
| 000       | * RNOT  | * 0096  | ** | 001     | * GNOT  | * 0000  | * |
| 002       | * FNOT  | * 0000  | ** | 003     | * FCPL  | * 0018  | * |
| 004       | * FCPG  | * 1993  | ** | 005     | * LFCI  | * +000  | * |
| 006       | * RUPL  | * 0017  | ** | 007     | * RUPG  | * 2057  | * |
| 008       | * PSTA  | * 5424  | ** | 009     | * RECN  | * 0714  | * |
| 010       | * RECL  | * 0002  | ** | 011     | * DEL   | * 0000  | * |
| 012       | * SEAR  | * 0686  | ** | 013     | * NTRA  | * 0037  | * |
| 014       | * SLOP  | * 0018  | ** | 015     | * GCUR  | * 0001  | * |
| 016       | * SMG   | * 0042  | ** | 017     | * OUTA  | * 0000  | * |
| 018       | * RTIM  | * 0010  | ** | 019     | * CDEL  | * 0008  | * |
| 020       | * EARG  | * 0000  | ** | 021     | * AGC   | * 0000  | * |
| 022       | * RDEL  | * 0032  | ** | 023     | * MODE  | * 0004  | * |
| 024       | * GRNU  | * 0001  | ** | 025     | * LINU  | * 0001  | * |
| 026       | * SHIN  | * 0001  | ** | 027     | * NELR  | * 0001  | * |
| 028       | * ROL   | * 0001  | ** | 029     | * ICE   | * 0001  | * |
| 030       | * PWRF  | * 0000  | ** |         |         |         |   |

#### CONTEXT MEMORY ZONE = 1

| * ADDRESS | * MNEMO | * VALUE | ** | ADDRESS | * MNEMO | * VALUE | * |
|-----------|---------|---------|----|---------|---------|---------|---|
| 048       | * NOL   | * 0001  | ** | 049     | * NORT  | * 0096  | * |
| 050       | * SR    | * 0002  | ** | 051     | * EXPL  | * 0000  | * |
| 052       | * STAC  | * 0000  | ** | 053     | * PBAG  | * 0018  | * |
| 054       | * SCN   | * 0000  | ** | 055     | * SUC   | * 0002  | * |
| 056       | *       | * 0000  | ** | 057     | *       | * 0007  | * |
| 058       | *       | * 0000  | ** | 059     | *       | * 0008  | * |
| 060       | *       | * 0018  | ** | 061     | * AUC1  | * 0002  | * |
| 062       | *       | * 0000  | ** | 063     | *       | * 0007  | * |
| 064       | *       | * 0000  | ** | 065     | *       | * 0008  | * |
| 066       | *       | * 0018  | ** | 067     | * AUC2  | * 0002  | * |
| 068       | *       | * 0000  | ** | 069     | *       | * 0007  | * |
| 070       | *       | * 0000  | ** | 071     | *       | * 0000  | * |
| 072       | *       | * 0018  | ** | 073     | * AUC3  | * 0002  | * |
| 074       | *       | * 0000  | ** | 075     | *       | * 0007  | * |
| 076       | *       | * 0000  | ** | 077     | *       | * 0000  | * |
| 078       | *       | * 0018  | ** | 079     | * AUC4  | * 0002  | * |
| 080       | *       | * 0000  | ** | 081     | *       | * 0007  | * |
| 082       | *       | * 0000  | ** | 083     | *       | * 0000  | * |
| 084       | *       | * 0018  | ** | 085     | * LPBF  | * 0012  | * |
| 086       | *       | * HPBF  | ** | 087     | * PBGN  | * 0001  | * |

# CONTEXT MEMORY ZONE = 2

| * ADDRESS | * MNEMO | * VALUE | ** | ADDRESS | * MNEMO | * VALUE | * |
|-----------|---------|---------|----|---------|---------|---------|---|
| 112       | * SUT   | * 0001  | ** | 113     | * AUXS  | * 0001  | * |
| 114       | * AUXL  | * 0000  | ** | 115     | * FOTB  | * 0000  | * |
| 116       | * TBW   | * 0300  | ** | 117     | * RECT  | * 0001  | * |
| 118       | * RSI   | * 0000  | ** | 119     | * THFI  | * 0000  | * |
| 120       | * RLU   | * 1024  | ** | 121     | * CDON  | * 1300  | * |
| 122       | * CDOF  | * 1000  | ** | 123     | * PBSI  | * 0000  | * |
| 124       | * CNOT  | * 0048  | ** | 125     | * ORGE  | * 0001  | * |
| 126       | * PTFI  | * 0000  | ** | 127     | * CHNI  | * 1020  | * |
| 128       | *       | * A404  | ** | 129     | *       | * 0000  | * |
| 130       | *       | * 0000  | ** | 131     | *       | * 0000  | * |
| 132       | * CHN2  | * 0100  | ** | 133     | *       | * A201  | * |
| 134       | *       | * 0000  | ** | 135     | *       | * 0000  | * |
| 136       | *       | * 0000  | ** | 137     | * CHN3  | * 0220  | * |
| 138       | *       | * A403  | ** | 139     | *       | * A221  | * |
| 140       | *       | * A403  | ** | 141     | *       | * A222  | * |
| 142       | *       | * A403  | ** | 143     | *       | * 0000  | * |
| 144       | *       | * 0000  | ** | 145     | *       | * 0000  | * |
| 146       | *       | * 0000  | ** | 147     | * LTV   | * 0003  | * |
| 148       | *       | * 0009  | ** | 149     | *       | * 0006  | * |
| 150       | *       | * 0009  | ** | 151     | *       | * 0028  | * |
| 152       | *       | * 0009  | ** | 153     | * GTV   | * 0003  | * |
| 154       | *       | * 0009  | ** | 155     | *       | * 0006  | * |
| 156       | *       | * 0009  | ** | 157     | *       | * 0028  | * |
| 158       | *       | * 0009  | ** | 159     | * UFRT  | * 0001  | * |
| 160       | *       | * 0000  | ** | 161     | *       | * 0000  | * |
| 162       | *       | * 0001  | ** | 163     | *       | * 0000  | * |
| 164       | *       | * 0000  | ** | 165     | *       | * 0001  | * |
| 166       | *       | * 0000  | ** | 167     | *       | * 0000  | * |
| 168       | * NSN   | * 0500  | ** | 169     | * NTT   | * 0400  | * |
| 170       | * OFTT  | * 1000  | ** | 171     | * LPBR  | * 9600  | * |
| 172       | * HME   | * 0000  | ** | 173     | * OFI   | * 0000  | * |
| 174       | * MONO  | * 0001  | ** | 175     | * SSEI  | * 0000  | * |
| 176       | * RSD   | * 0000  | ** | 177     | * GCE   | * 0001  | * |
| 178       | * TELE  | * 0000  | ** | 179     | * NRS   | * 0024  | * |
| 180       | * NGW   | * 0001  | ** | 181     | * NFS   | * 0024  | * |
| 182       | * LCP   | * 9999  | ** | 183     | * AUTI  | * 0000  | * |
| 184       | * EGLK  | * 0018  | ** | 185     | * OALK  | * 0000  | * |
| 186       | * EBLA  | * 0000  | ** | 187     | * SPNL  | * 1800  | * |
| 188       | * SPNG  | * 2088  | ** | 189     | *       | * 0000  | * |

# CONTEXT MEMORY ZONE = 3

| * ADD | * VALUE | ** ADD | * VALUE | ** ADD | * VALUE | ** ADD | * VALUE | ** ADD | * VALUE | * |
|-------|---------|--------|---------|--------|---------|--------|---------|--------|---------|---|
| * 200 | * 0000  | ** 201 | * 0000  | ** 202 | * 0000  | ** 203 | * 0000  | *      |         | * |
| * 204 | * 0000  | ** 205 | * 0000  | ** 206 | * 0000  | ** 207 | * 0000  | *      |         | * |
| * 208 | * 0000  | ** 209 | * 0000  | ** 210 | * 0000  | ** 211 | * 0000  | *      |         | * |
| * 212 | * 0000  | ** 213 | * 0000  | ** 214 | * 0000  | ** 215 | * 0000  | *      |         | * |
| * 216 | * 0000  | ** 217 | * 0000  | ** 218 | * 0000  | ** 219 | * 0000  | *      |         | * |
| * 220 | * 0000  | ** 221 | * 0000  | ** 222 | * 0000  | ** 223 | * 0000  | *      |         | * |
| * 224 | * 0000  | ** 225 | * 0000  | ** 226 | * 0000  | ** 227 | * 0000  | *      |         | * |
| * 228 | * 0000  | ** 229 | * 0000  | ** 230 | * 0000  | ** 231 | * 0000  | *      |         | * |
| * 232 | * 0000  | ** 233 | * 0000  | ** 234 | * 0000  | ** 235 | * 0000  | *      |         | * |
| * 236 | * 0000  | ** 237 | * 0000  | ** 238 | * 0000  | ** 239 | * 0000  | *      |         | * |
| * 240 | * 0000  | ** 241 | * 0000  | ** 242 | * 0000  | ** 243 | * 0000  | *      |         | * |
| * 244 | * 0000  | ** 245 | * 0000  | ** 246 | * 0000  | ** 247 | * 0000  | *      |         | * |
| * 248 | * 0000  | ** 249 | * 0000  | ** 250 | * 0000  | ** 251 | * 0000  | *      |         | * |
| * 252 | * 0000  | ** 253 | * 0000  | ** 254 | * 0000  | ** 255 | * 0000  | *      |         | * |
| * 256 | * 0000  | ** 257 | * 0000  | ** 258 | * 0000  | ** 259 | * 0000  | *      |         | * |
| * 260 | * 0000  | ** 261 | * 0000  | ** 262 | * 0000  | ** 263 | * 0000  | *      |         | * |
| * 264 | * 0000  | ** 265 | * 0000  | ** 266 | * 0000  | ** 267 | * 0000  | *      |         | * |
| * 268 | * 0000  | ** 269 | * 0000  | ** 270 | * 0000  | ** 271 | * 0000  | *      |         | * |
| * 272 | * 0000  | ** 273 | * 0000  | ** 274 | * 0000  | ** 275 | * 0000  | *      |         | * |
| * 276 | * 0000  | ** 277 | * 0000  | ** 278 | * 0000  | ** 279 | * 0000  | *      |         | * |
| * 280 | * 0000  | ** 281 | * 0000  | ** 282 | * 0000  | ** 283 | * 0000  | *      |         | * |
| * 284 | * 0000  | ** 285 | * 0000  | ** 286 | * 0000  | ** 287 | * 0000  | *      |         | * |
| * 288 | * 0000  | ** 289 | * 0000  | ** 290 | * 0000  | ** 291 | * 0000  | *      |         | * |
| * 292 | * 0000  | ** 293 | * 0000  | ** 294 | * 0000  | ** 295 | * 0000  | *      |         | * |
| * 296 | * 0000  | ** 297 | * 0000  | ** 298 | * 0000  | ** 299 | * 0000  | *      |         | * |

# CONTEXT MEMORY ZONE = 4

| * ADD * | VALUE ** | ADD *   | VALUE ** | ADD *   | VALUE ** | ADD *   | VALUE * |
|---------|----------|---------|----------|---------|----------|---------|---------|
| * 300 * | +0000 ** | * 301 * | +0198 ** | * 302 * | +1300 ** | * 303 * | +1146 * |
| * 304 * | -0738 ** | * 305 * | -0771 ** | * 306 * | -0285 ** | * 307 * | -0363 * |
| * 308 * | -0361 ** | * 309 * | -0288 ** | * 310 * | -0251 ** | * 311 * | -0213 * |
| * 312 * | -0172 ** | * 313 * | -0135 ** | * 314 * | -0100 ** | * 315 * | -0068 * |
| * 316 * | -0039 ** | * 317 * | -0013 ** | * 318 * | +0010 ** | * 319 * | +0030 * |
| * 320 * | +0047 ** | * 321 * | +0062 ** | * 322 * | +0074 ** | * 323 * | +0084 * |
| * 324 * | +0091 ** | * 325 * | +0096 ** | * 326 * | +0099 ** | * 327 * | +0100 * |
| * 328 * | +0099 ** | * 329 * | +0097 ** | * 330 * | +0094 ** | * 331 * | +0090 * |
| * 332 * | +0085 ** | * 333 * | +0079 ** | * 334 * | +0073 ** | * 335 * | +0066 * |
| * 336 * | +0059 ** | * 337 * | +0052 ** | * 338 * | +0045 ** | * 339 * | +0037 * |
| * 340 * | +0030 ** | * 341 * | +0024 ** | * 342 * | +0017 ** | * 343 * | +0011 * |
| * 344 * | +0005 ** | * 345 * | +0000 ** | * 346 * | -0005 ** | * 347 * | -0009 * |
| * 348 * | -0013 ** | * 349 * | -0017 ** | * 350 * | -0020 ** | * 351 * | -0023 * |
| * 352 * | -0025 ** | * 353 * | -0027 ** | * 354 * | -0028 ** | * 355 * | -0029 * |
| * 356 * | -0030 ** | * 357 * | -0030 ** | * 358 * | -0030 ** | * 359 * | -0030 * |
| * 360 * | -0029 ** | * 361 * | -0028 ** | * 362 * | -0027 ** | * 363 * | -0026 * |
| * 364 * | -0024 ** | * 365 * | -0023 ** | * 366 * | -0021 ** | * 367 * | -0020 * |
| * 368 * | -0018 ** | * 369 * | -0016 ** | * 370 * | -0014 ** | * 371 * | -0013 * |
| * 372 * | -0011 ** | * 373 * | -0009 ** | * 374 * | -0008 ** | * 375 * | -0006 * |
| * 376 * | -0005 ** | * 377 * | -0003 ** | * 378 * | -0002 ** | * 379 * | -0001 * |
| * 380 * | +0000 ** | * 381 * | +0000 ** | * 382 * | +0001 ** | * 383 * | +0002 * |
| * 384 * | +0003 ** | * 385 * | +0004 ** | * 386 * | +0004 ** | * 387 * | +0005 * |
| * 388 * | +0005 ** | * 389 * | +0005 ** | * 390 * | +0006 ** | * 391 * | +0006 * |
| * 392 * | +0006 ** | * 393 * | +0006 ** | * 394 * | +0006 ** | * 395 * | +0006 * |
| * 396 * | +0000 ** | * 397 * | +0000 ** | * 398 * | +0000 ** | * 399 * | +0000 * |

# CONTEXT MEMORY ZONE = 5

| * ADD | * VALUE | ** ADD | * VALUE | ** ADD | * VALUE | ** ADD | * VALUE | ** ADD | * VALUE | * |
|-------|---------|--------|---------|--------|---------|--------|---------|--------|---------|---|
| * 400 | * 0000  | ** 401 | * 0000  | ** 402 | * 0000  | ** 403 | * 0000  | *      |         | * |
| * 404 | * 0000  | ** 405 | * 0000  | ** 406 | * 0000  | ** 407 | * 0000  | *      |         | * |
| * 408 | * 0000  | ** 409 | * 0000  | ** 410 | * 0000  | ** 411 | * 0000  | *      |         | * |
| * 412 | * 0000  | ** 413 | * 0000  | ** 414 | * 0000  | ** 415 | * 0000  | *      |         | * |

# CONTEXT MEMORY ZONE = 6

| * ADD | * VALUE | ** ADD | * VALUE | ** ADD | * VALUE | * |
|-------|---------|--------|---------|--------|---------|---|
| * 416 | * 0001  | ** 417 | * 53E5  | ** 418 | * C600  | * |
| * 419 | * 0004  | ** 420 | * 5860  | ** 421 | * 4092  | * |
| * 422 | * 0003  | ** 423 | * 5862  | ** 424 | * B0FD  | * |
| * 425 | * 0003  | ** 426 | * 5863  | ** 427 | * F300  | * |
| * 428 | * 0003  | ** 429 | * 5864  | ** 430 | * 63DC  | * |
| * 431 | * 0003  | ** 432 | * 63DC  | ** 433 | * 210E  | * |
| * 434 | * 0003  | ** 435 | * 63DD  | ** 436 | * C008  | * |
| * 437 | * 0003  | ** 438 | * 63DE  | ** 439 | * C602  | * |
| * 440 | * 0003  | ** 441 | * 63DF  | ** 442 | * C010  | * |
| * 443 | * 0003  | ** 444 | * 63E0  | ** 445 | * C604  | * |
| * 446 | * 0003  | ** 447 | * 63E1  | ** 448 | * C012  | * |
| * 449 | * 0003  | ** 450 | * 63E2  | ** 451 | * C606  | * |
| * 452 | * 0003  | ** 453 | * 63E3  | ** 454 | * C016  | * |
| * 455 | * 0003  | ** 456 | * 63E4  | ** 457 | * C608  | * |
| * 458 | * 0003  | ** 459 | * 63E5  | ** 460 | * C020  | * |
| * 461 | * 0003  | ** 462 | * 63E6  | ** 463 | * C60A  | * |
| * 464 | * 0003  | ** 465 | * 63E7  | ** 466 | * C025  | * |
| * 467 | * 0003  | ** 468 | * 63E8  | ** 469 | * C60C  | * |
| * 470 | * 0003  | ** 471 | * 63E9  | ** 472 | * C00F  | * |
| * 473 | * 0003  | ** 474 | * 63EA  | ** 475 | * C60E  | * |
| * 476 | * 0003  | ** 477 | * 63EB  | ** 478 | * F300  | * |
| * 479 | * 0003  | ** 480 | * 63EC  | ** 481 | * 5865  | * |
| * 482 | * 0002  | ** 483 | * 53FC  | ** 484 | * C43F  | * |
| * 485 | * 0002  | ** 486 | * 5409  | ** 487 | * F300  | * |
| * 488 | * 0002  | ** 489 | * 540A  | ** 490 | * 6160  | * |
| * 491 | * 0002  | ** 492 | * 6160  | ** 493 | * B0F1  | * |
| * 494 | * 0002  | ** 495 | * 6161  | ** 496 | * 3102  | * |
| * 497 | * 0002  | ** 498 | * 6162  | ** 499 | * F300  | * |
| * 500 | * 0002  | ** 501 | * 6163  | ** 502 | * 541E  | * |
| * 503 | * 0002  | ** 504 | * 6164  | ** 505 | * B303  | * |
| * 506 | * 0002  | ** 507 | * 6165  | ** 508 | * 90AE  | * |
| * 509 | * 0002  | ** 510 | * 6166  | ** 511 | * F300  | * |
| * 512 | * 0002  | ** 513 | * 6167  | ** 514 | * 540B  | * |
| * 515 | * 0002  | ** 516 | * 6168  | ** 517 | * 5438  | * |
| * 518 | * 0003  | ** 519 | * 63ED  | ** 520 | * B311  | * |
| * 521 | * 0003  | ** 522 | * 63EE  | ** 523 | * 8B13  | * |
| * 524 | * 0003  | ** 525 | * 63EF  | ** 526 | * 90E5  | * |
| * 527 | * 0003  | ** 528 | * 63F0  | ** 529 | * F300  | * |
| * 530 | * 0003  | ** 531 | * 63F1  | ** 532 | * F300  | * |
| * 533 | * 0003  | ** 534 | * 63F2  | ** 535 | * 4924  | * |
| * 536 | * 0003  | ** 537 | * 63F3  | ** 538 | * B30C  | * |
| * 539 | * 0003  | ** 540 | * 63F4  | ** 541 | * 8B0D  | * |

|         |      |          |      |          |      |   |
|---------|------|----------|------|----------|------|---|
| * 542 * | 0003 | ** 543 * | 63F5 | ** 544 * | 90E5 | * |
| * 545 * | 0003 | ** 546 * | 63F6 | ** 547 * | 9B0C | * |
| * 548 * | 0003 | ** 549 * | 63F7 | ** 550 * | F300 | * |
| * 551 * | 0003 | ** 552 * | 63F8 | ** 553 * | 492C | * |
| * 554 * | 0003 | ** 555 * | 63F9 | ** 556 * | B307 | * |
| * 557 * | 0003 | ** 558 * | 63FA | ** 559 * | 8B07 | * |
| * 560 * | 0003 | ** 561 * | 63FB | ** 562 * | 90E5 | * |
| * 563 * | 0003 | ** 564 * | 63FC | ** 565 * | 9B06 | * |
| * 566 * | 0003 | ** 567 * | 63FD | ** 568 * | F300 | * |
| * 569 * | 0003 | ** 570 * | 63FE | ** 571 * | 4933 | * |
| * 572 * | 0003 | ** 573 * | 63FF | ** 574 * | 502A | * |
| * 575 * | 0003 | ** 576 * | 6400 | ** 577 * | 502B | * |
| * 578 * | 0003 | ** 579 * | 6401 | ** 580 * | 502C | * |
| * 581 * | 0003 | ** 582 * | 6402 | ** 583 * | 4837 | * |
| * 584 * | 0003 | ** 585 * | 6403 | ** 586 * | 481A | * |
| * 587 * | 0003 | ** 588 * | 4922 | ** 589 * | F300 | * |
| * 590 * | 0003 | ** 591 * | 4923 | ** 592 * | 63ED | * |
| * 593 * | 0003 | ** 594 * | 492A | ** 595 * | F300 | * |
| * 596 * | 0003 | ** 597 * | 492B | ** 598 * | 63F3 | * |
| * 599 * | 0003 | ** 600 * | 4931 | ** 601 * | F300 | * |
| * 602 * | 0003 | ** 603 * | 4932 | ** 604 * | 63F9 | * |
| * 605 * | 0003 | ** 606 * | 4945 | ** 607 * | B31E | * |
| * 608 * | 0003 | ** 609 * | 4946 | ** 610 * | 90E5 | * |
| * 611 * | 0003 | ** 612 * | 4949 | ** 613 * | 90E5 | * |
| * 614 * | 0003 | ** 615 * | 494C | ** 616 * | 90E5 | * |
| * 617 * | 0001 | ** 618 * | 537C | ** 619 * | F300 | * |
| * 620 * | 0001 | ** 621 * | 537D | ** 622 * | 557A | * |
| * 623 * | 0001 | ** 624 * | 557A | ** 625 * | 2801 | * |
| * 626 * | 0001 | ** 627 * | 557B | ** 628 * | B304 | * |
| * 629 * | 0001 | ** 630 * | 557C | ** 631 * | 9B03 | * |
| * 632 * | 0001 | ** 633 * | 557D | ** 634 * | 98E2 | * |
| * 635 * | 0001 | ** 636 * | 557E | ** 637 * | F300 | * |
| * 638 * | 0001 | ** 639 * | 557F | ** 640 * | 537F | * |
| * 641 * | 0001 | ** 642 * | 5580 | ** 643 * | 011D | * |
| * 644 * | 0000 | ** 645 * | 0246 | ** 646 * | C400 | * |
| * 647 * | 0000 | ** 648 * | 1F32 | ** 649 * | C400 | * |
| * 650 * | 0000 | ** 651 * | 1F46 | ** 652 * | C400 | * |
| * 653 * | 0000 | ** 654 * | 0358 | ** 655 * | 0800 | * |
| * 656 * | 0000 | ** 657 * | 0359 | ** 658 * | 0900 | * |
| * 659 * | 0002 | ** 660 * | 5D87 | ** 661 * | C400 | * |
| * 662 * | 0002 | ** 663 * | 5CE8 | ** 664 * | F201 | * |
| * 665 * | 0002 | ** 666 * | 5D85 | ** 667 * | F201 | * |
| * 668 * | 0000 | ** 669 * | 1F59 | ** 670 * | 0000 | * |
| * 671 * | 0000 | ** 672 * | 1F09 | ** 673 * | 03E8 | * |
| * 674 * | 0000 | ** 675 * | 1F0D | ** 676 * | 98DA | * |
| * 677 * | 0002 | ** 678 * | 60F1 | ** 679 * | 0000 | * |
| * 680 * | 0000 | ** 681 * | 3C19 | ** 682 * | F300 | * |
| * 683 * | 0000 | ** 684 * | 3C1A | ** 685 * | 6169 | * |
| * 686 * | 0002 | ** 687 * | 6169 | ** 688 * | 58E0 | * |
| * 689 * | 0002 | ** 690 * | 616A | ** 691 * | C434 | * |
| * 692 * | 0002 | ** 693 * | 616B | ** 694 * | 6EE4 | * |
| * 695 * | 0002 | ** 696 * | 616C | ** 697 * | 5AE5 | * |
| * 698 * | 0002 | ** 699 * | 616D | ** 700 * | 58E6 | * |
| * 701 * | 0002 | ** 702 * | 616E | ** 703 * | B308 | * |
| * 704 * | 0002 | ** 705 * | 616F | ** 706 * | C0CB | * |

|       |        |        |        |        |        |   |
|-------|--------|--------|--------|--------|--------|---|
| * 707 | * 0002 | ** 708 | * 6170 | ** 709 | * 0128 | * |
| * 710 | * 0002 | ** 711 | * 6171 | ** 712 | * C0CB | * |
| * 713 | * 0002 | ** 714 | * 6172 | ** 715 | * C6D2 | * |
| * 716 | * 0002 | ** 717 | * 6173 | ** 718 | * E8F7 | * |
| * 719 | * 0002 | ** 720 | * 6174 | ** 721 | * BB03 | * |
| * 722 | * 0002 | ** 723 | * 6175 | ** 724 | * F300 | * |
| * 725 | * 0002 | ** 726 | * 6176 | ** 727 | * 3C1B | * |
| * 728 | * 0002 | ** 729 | * 6177 | ** 730 | * 3C80 | * |
| * 731 | * 0002 | ** 732 | * 6178 | ** 733 | * 3C81 | * |
| * 734 | * 0002 | ** 735 | * 4CBD | ** 736 | * C400 | * |
| * 737 | * 0002 | ** 738 | * 4CBE | ** 739 | * C6B1 | * |
| * 740 | * 0002 | ** 741 | * 4CBF | ** 742 | * F984 | * |
| * 743 | * 0002 | ** 744 | * 4CC0 | ** 745 | * 0000 | * |
| * 746 | * 0002 | ** 747 | * 4CC1 | ** 748 | * F740 | * |
| * 749 | * 0002 | ** 750 | * 4CC2 | ** 751 | * E22A | * |
| * 752 | * 0002 | ** 753 | * 4CC3 | ** 754 | * C6B1 | * |
| * 755 | * 0002 | ** 756 | * 4CC4 | ** 757 | * F984 | * |
| * 758 | * 0002 | ** 759 | * 4CC5 | ** 760 | * 0001 | * |
| * 761 | * 0002 | ** 762 | * 4CC7 | ** 763 | * B21B | * |
| * 764 | * 0002 | ** 765 | * 4CC8 | ** 766 | * 978D | * |
| * 767 | * 0002 | ** 768 | * 4CC9 | ** 769 | * 0048 | * |
| * 770 | * 0002 | ** 771 | * 4CCA | ** 772 | * B78F | * |
| * 773 | * 0002 | ** 774 | * 4CCB | ** 775 | * 9A03 | * |
| * 776 | * 0002 | ** 777 | * 4CCC | ** 778 | * C6B0 | * |
| * 779 | * 0002 | ** 780 | * 4CCD | ** 781 | * F983 | * |
| * 782 | * 0002 | ** 783 | * 4CCE | ** 784 | * 0000 | * |
| * 785 | * 0002 | ** 786 | * 4CCF | ** 787 | * 0000 | * |
| * 788 | * 0002 | ** 789 | * 5454 | ** 790 | * F300 | * |
| * 791 | * 0002 | ** 792 | * 5455 | ** 793 | * 619E | * |
| * 794 | * 0002 | ** 795 | * 619E | ** 796 | * C632 | * |
| * 797 | * 0002 | ** 798 | * 619F | ** 799 | * 00D0 | * |
| * 800 | * 0002 | ** 801 | * 61A0 | ** 802 | * 3141 | * |
| * 803 | * 0002 | ** 804 | * 61A1 | ** 805 | * 9B02 | * |
| * 806 | * 0002 | ** 807 | * 61A2 | ** 808 | * F300 | * |
| * 809 | * 0002 | ** 810 | * 61A3 | ** 811 | * 5456 | * |
| * 812 | * 0002 | ** 813 | * 61A4 | ** 814 | * 0122 | * |